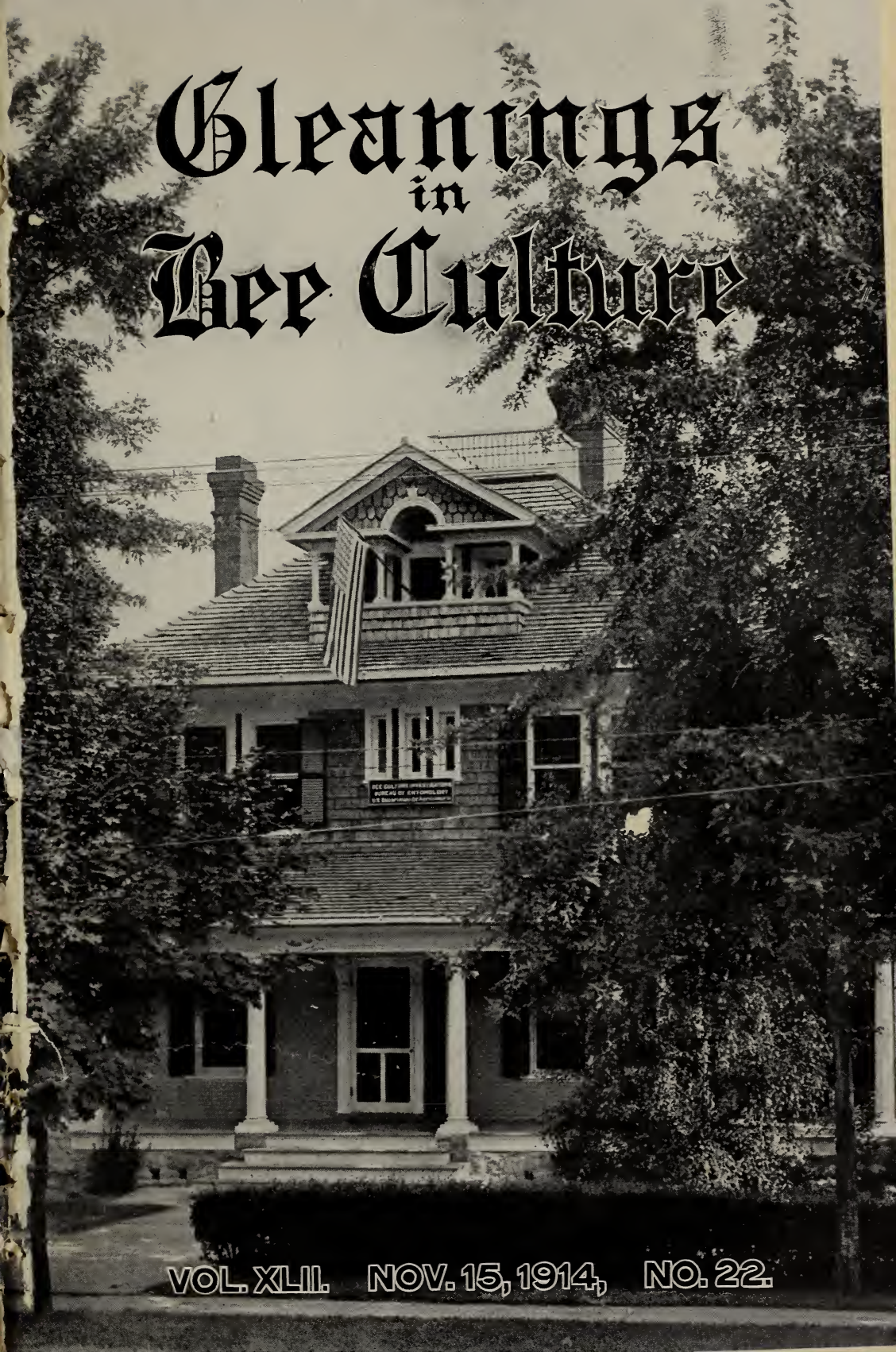
# Gleanings in Bee Culture



VOL. XLII. NOV. 15, 1914, NO. 22.

The New
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**The Oliver Typewriter Co.** Oliver Typewriter Bldg. Chicago, Illinois

## HONEY MARKETS

The prices listed below are intended to represent, as nearly as possible, the average market prices at which honey and beeswax are selling at the time of the report in the city mentioned. Unless otherwise stated, this is the price at which sales are being made by commission merchants or by producers direct to the retail merchants. When sales are made by commission merchants the usual commission (from five to ten per cent), cartage, and freight will be deducted; and in addition there is often a charge for storage by the commission merchant. When sales are made by the producer direct to the retailer, commission and storage and other charges are eliminated. Sales made to wholesale houses are usually about ten per cent less than those to retail merchants.

NATIONAL BEEKEEPERS' ASSOCIATION GRADING-RULES

*Adopted at Cincinnati, Feb. 13, 1913.*

Sections of comb honey are to be graded: First, as to finish; second, as to color of honey; and third, as to weight. The sections of honey in any given case are to be so nearly alike in these three respects that any section shall be representative of the contents of the case.

### 1. FINISH.

1. *Extra Fancy.*—Sections to be evenly filled, comb firmly attached to the four sides, the sections to be free from propolis or other pronounced stain, combs and cappings white, and not more than six unsealed cells on either side.

2. *Fancy.*—Sections to be evenly filled, comb firmly attached to the four sides, the sections free from propolis or other pronounced stain, comb and cappings white, and not more than six unsealed cells on either side, exclusive of the outside row.

3. *No. 1.*—Sections to be evenly filled, comb firmly attached to the four sides, the sections free from propolis or other pronounced stain, comb and cappings white to slightly off color, and not more than 40 unsealed cells, exclusive of the outside row.

4. *No. 2.*—Comb not projecting beyond the box, attached to the sides not less than two-thirds of the way around, and not more than 60 unsealed cells exclusive of the row adjacent to the box.

### II. COLOR.

On the basis of color of the honey, comb honey is to be classified as: first, white; second, light amber; third, amber; and fourth, dark.

### III. WEIGHT.

1. *Heavy.*—No section designated as heavy to weigh less than fourteen ounces.

2. *Medium.*—No section designated as medium to weigh less than 12 ounces.

3. *Light.*—No section designated as light to weigh less than ten ounces.

In describing honey, three words or symbols are to be used, the first being descriptive of the finish, the second of color, and the third of weight; as, for example: Fancy, white, heavy (F-W-H); No. 1, amber, medium (1-A-M), etc. In this way any of the possible combinations of finish, color, and weight can be briefly described.

### CULL HONEY.

Cull honey shall consist of the following: Honey packed in soiled second-hand cases or that in badly stained or propolized sections; sections containing pollen, honey-dew honey, honey showing signs of granulation, poorly ripened, sour or "weeping" honey; sections with comb projecting beyond the box or well attached to the box less than two-thirds the distance around its inner surface; sections with more than 60 unsealed cells, exclusive of the row adjacent to the box; leaking, injured, or patched-up sections; sections weighing less than ten ounces.

HONEY-GRADING RULES ADOPTED BY THE COLORADO STATE BEEKEEPERS' ASSOCIATION, DECEMBER 13, 1911.

FANCY WHITE.—Sections to be well filled, comb firmly attached to all sides and evenly capped except the outside row next to the wood. Honey, combs, and cappings white, and not projecting beyond the wood; wood to be well cleaned; no sections in this grade to weigh less than 13½ ounces.

NO. 1.—Sections to be well filled, combs firmly attached on all sides and evenly capped, except the outside row next to the wood. Honey white or very slightly off color. Combs not projecting beyond the wood; wood to be well cleaned; no section in this grade to weigh less than 13½ ounces.

CHOICE.—Sections to be well filled; combs firmly attached; not projecting beyond the wood, and entirely capped, except the outside row next to the wood. Honey, comb, and cappings from white to amber, but not dark; wood to be well cleaned; no section in this grade to weigh less than 12 ounces.

NO. 2.—This grade is composed of sections that are entirely capped, except row next to wood, weighing from ten to twelve ounces or more, also of such sections that weigh 12 ounces or more, and have not more than 50 uncapped cells all together, which must be filled. Combs and cappings from white to amber in color, but not dark; wood to be well cleaned.

EXTRACTED HONEY.—Must be thoroughly ripened, weigh 12 pounds per gallon. It must be well strained, and packed in new cans. It is classed as white, light amber, and amber.

STRAINED HONEY.—This is honey obtained from combs by all other means than the centrifugal extractors, and is classed as white, light amber, amber, and dark; it must be thoroughly ripened and well strained. It may be put up in cans that previously have contained honey.

NEW YORK.—We have nothing new to report at this time. The market remains about the same. There is just a fair demand for both comb and extracted honey, which is about the same price as quoted in the last issue. The same may be said about beeswax.

New York, Nov. 5. HILDRETH & SEGELKEN.

ALBANY.—There is no change in honey. Market receipts of comb honey are light. Normal price of best grade, 17 to 18; No. 1, clover, 16; mixed, 14 to 15; buckwheat, No. 1, 15; good, 14. Extracted is quiet at 8½ to 9 for white; 7½ to 8 for buckwheat and amber.

Albany, Nov. 4. H. R. WRIGHT.

*Honey reports continued on page 5.*

# Gleanings in Bee Culture

E. R. ROOT, Editor — A. I. ROOT, Editor Home Dept. — H. H. ROOT, Managing Editor — J. T. CALVERT, Business Mgr.

Department Editors:—Dr. C. C. Miller, J. E. Crane, Louis H. Scholl, G. M. Doolittle, Wesley Foster, J L. Byer, P. C. Chadwick.

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## Contents for November 15, 1914

*Honey reports continued from page 2.*

INDIANAPOLIS.—The demand for extracted honey is good, although the demand for comb has not been very active. We quote No. 1 choice white at $3.50 to $4.00 per case; best white extracted in 60-pound cans, 9½ to 10½; California sage, 10 to 11. For bright yellow beeswax we are paying 30 cts. cash, 32 cts. in exchange for supplies.
Indianapolis, Nov. 4. WALTER S. POUDER.

ST. LOUIS.—The supply of both extracted and comb honey in this market is quite liberal, but the demand so far is only fair. We are still quoting No. 1 white comb, 24 sections to the case, from $3.35 to $3.50, and No. 2 from $3.00 to $3.25; light amber from $2.50 to $3.00; extracted honey, 5 to 7½, according to quality, flavor, and quantity. Beeswax is quoted at 30 cts. for prime; inferior and impure, less. R. HARTMANN PRODUCE CO.
St. Louis, Nov. 4.

ZANESVILLE.—Rather unsatisfactory industrial conditions in the cities and towns of this section are reflected in the honey trade. However, we note a slightly better demand than at the time of last report. Offerings are fairly liberal, and seem fully to balance the demand. Best grades of white comb are quoted 18 to 21 wholesale, according to quantity; a cent or two less in a jobbing way. Best white extracted in 60-lb. cans sells at 9 to 11, according to quantity. Producers are paid for beeswax 30 cts. cash, 32 in trade.
Zanesville, Nov. 4. E. W. PEIRCE.

CINCINNATI.—There is nothing new to report. The demand for all grades of honey is uninteresting, and we do not expect it to be otherwise, for it seems this is an off year. Comb honey is moving a little at $3.50 to $4.00 a case, according to quantity and quality purchased. Fancy white-clover extracted honey brings from 8 to 10; southern amber extracted has a black eye in the way of prices, for the reason foreign honey is being diverted into the United States market with orders to sell at any price. We have heard of sales as low as 3½ cts. per lb., which is rather hard on the southern producer. Beeswax seems to be easier. While we are still paying 30 cts. per lb. delivered here for choice bright yellow, free from dirt, it can be bought for 25 cts. per lb. THE FRED W. MUTH CO.
Cincinnati, Nov. 5.

CHICAGO.—There has been no surplus of the white grades of comb honey, and the price is very firm at 17 cts. per lb. where wood is allowed for, with the fancy grades bringing 18 cts. per lb. There is no accumulation of the off grades, including ambers, and the prices range from within 1 to 4 cts. per lb. of that obtained for white grades. Extracted is quiet, especially so the amber grades that are coming from California and the West Indies. The nearby production of amber honey is selling fairly well around 7 cts. per lb., with water-white sage, linden and white clover selling at from 9 to 10 cts. per lb. The sweet clovers and alfalfa are selling chiefly at 8 cts. per lb.; that which is off in color at about 7 cts. per lb. Beeswax ranges from 31 to 33 cts. per lb., according to color and cleanliness.
Chicago, Ill., Nov. 3. R. A. BURNETT & CO.

### How to Get a Good Egg Crop During Winter

Animal food is absolutely essential to hens during cold weather. Right now, when they are deprived of beetles, bugs, worms, etc., we must see that the hen is given some good substitute.

There is no better food than fresh ground bone to produce a plentiful supply of eggs. And surely there is no food as cheap as bone. Think of the bones that we throw from our dinner tables. You can buy enough bone for 5 cents to feed from 15 to 20 hens.

One of the finest bone-cutters that has ever come to our notice is the Humphrey—made by Humphrey & Sons of Mine Street Factory, Joliet, Ill. This firm also publishes a mighty interesting book called "The Golden Egg." Our readers are urged to write to this concern for their booklet, for it contains much information on the care of poultry, and gives many valuable pointers on egg production.

# Gleanings in Bee Culture

DEVOTED TO HONEY, BEES, AND HOME INTERESTS



## Index to Advertisements

NO PATENT MEDICINE "IN OURS," ETC.

*Mr. A. I. Root:—*

I want to thank you for all of the good things I find in the last pages of GLEANINGS—in fact, all that has the AIR "ear-marks." It is not to be presumed that the great eastern theological colleges would rate your sermons up to the 99 mark, but I wish to say that the matter-of-fact, daily exhibit of the times, and the remedies, are to the point, and worthy of the most diligent heed. The pulpit need of the hour is a direct thrust with a "*thou* are the man," with no evasion, and from a man who is preaching for Christ, and not for a salary, as the object. Keep on as long as you can, and your other departments as well.

In a way I envy you in living south the coming winter; but I think now that we shall stay in our comfortable home and refrain from taking any patent medicines.

Aurora, Ohio, Oct. 29. JOHN GOULD.

# Gleanings in Bee Culture

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VOL. XLII. NOVEMBER 15, 1914 NO. 22

## EDITORIALS

We have already sent one carload of bees to the Dismal Swamp of Virginia, and another one will follow Nov. 16. The freight will be less than half as much as we paid last year to Florida. The climate is mild, so that the bees can get pollen and nectar almost every day in the year. More anon.

### Cover Picture

As announced on page 857 of the last issue, our cover for this number shows the new apiarian laboratory for bee culture investigations under the U. S. Department of Agriculture. This building, located in a suburb of Washington (Drummond, Md.), gives far better facilities for experimental work in bee culture than has ever been possible before. Beekeepers of the country may well be proud of the new building and equipment.

The experimental apiary in the rear of the laboratory is shown on page 856 of the last issue.

### A Word to Would-be Inventors; Why a Plain Simple Hive is More of a Moneymaker than Some of the More Complicated Ones

Every now and then a reader of Gleanings discovers "something new under the sun"—something that will revolutionize beekeeping and bring everlasting fame to the inventor. Others are more modest in their hopes of the ultimate success of their new-born ideas. Perhaps we may be pardoned for offering a suggestion. Most would-be inventors are doomed to disappointment. History proves that beyond any question. Inventions in the bee line are no exception; for beyond the great invention of the Langstroth hive and frame, the centrifugal extractor of Hruschka, and comb foundation of Mehring, no revolutionary steps have been taken. Many minor inventions, and some of very great value, have been made, but none of them have yielded their inventors any considerable revenue through the medium of a patent. We do not wish to discourage inventive genius and progress in search of better methods for securing more and better honey. We shall welcome every idea that is presented to us, and those that we consider of sufficient merit we will place before our readers. Many an idea has been offered to us; but because it never appears in print the introducer naturally concludes that we do not consider it has any merit, when the fact is these same ideas have been exploited and described in the past, and it is obviously a waste of time and space to exploit them again.

Inventors are still inventing reversible frames that were thoroughly described and found wanting in the early eighties. They are still inventing new hives, new feeders, new foundation fasteners, new entrance-guards, new drone-traps. Instead of being "new," these things are all old. In most cases these would-be inventors have never read the text-books on bee culture. What a world of trouble and disappointment they would save themselves if they would only take pains to learn what others have done before they delve into fields that have been thoroughly worked over by others!

We have before us a model of a hive, the inventor of which regards it as something of more than ordinary merit. It certainly has some advantages; but the cost of it will more than absorb the profits that such a hive could make for the next ten years; and when we consider the uncertainties of the honey seasons we cannot afford to load down our investment too much at the beginning.

As a general rule a plain simple hive—one that is light and portable, and at the same time capable of expansion by putting on upper stories—is far better than some of the elaborate contraptions that have been brought out from time to time. Father Langstroth devised a simple hive; but as the years have rolled by, even *that* hive has been made less complicated by omitting porticos, cleats, and a big heavy cover. The tendency of modern beekeeping is to make a hive the body of which can be used either as a brood-chamber or as a super when

running for extracted honey. Comb-honey supers are just like the bodies, only half-depth. The covers are plain and simple, and likewise the bottom-boards.

In some localities double-walled hives have proven to be very desirable, although the first cost is greater than that of the single-walled hive. But the great mass of beekeepers are using the latter where conditions permit.

## J. W. Ferree, of California, in an Accident

We are sorry to learn that the president of the California State Beekeepers' Association, Mr. J. W. Ferree, suffered a serious accident on Saturday, October 24. While riding a new motorcycle he fell from the machine, striking his head on the curbing, which rendered him unconscious. Mr. Ferree does not know what caused the fall—whether he was run into, or whether the machine struck something in the road. Some parties in an automobile picked him up and carried him to a hospital in Los Angeles, where he lay for three days without fully recovering consciousness. When the beekeepers in the vicinity heard of the accident they crowded into the hospital like a swarm of bees, every one anxious to know the result of his injuries. We are happy to state that Pres. Ferree is now on the way to complete recovery.

## Fatal Automobile Accident to a Prominent Beeman

The name of W. W. Cary, Sr., is closely associated with that of L. L. Langstroth when the latter was perfecting his hive at the home of the former. A full account of this was given on page 853, 1913. The elder W. W. Cary died in 1884, and his obituary was written by father Langstroth himself in Gleanings for 1886, page 11. A son, W. W. Cary, Jr., then took up the business of keeping bees and of the making of cider vinegar. He in turn handed his mantle down to his son, Herbert F. Cary, and his son-in-law, Earl M. Nichols, of Lyonsville, Mass. These boys have been doing a nice business in selling bees and queens, beekeepers' supplies, and pure cider vinegar. See Gleanings, page 853, for last year.

We are just advised that Mr. Herbert F. Cary, son of the junior W. W. Cary, was killed instantly in an automobile collision on Sunday, Oct. 25. It appears that two machines, one of which was driven by Mr. Cary, collided after dark in such a way as to damage seriously the two machines, overturning one of them and killing Mr. Cary and wounding two of his sons. The accident occurred on a straight road; but apparently the driver of one machine or the other became confused and miscalculated the distance, with the result as stated.

The electric lights in the modern machines are a source of danger. It is almost impossible for two machines in approaching each other in opposite directions to see any thing. A pair of powerful electric lights so obscure the road and every thing else as to make miscalculating the distance an easy thing. This is not the first accident of the kind that has happened. Already legislation in several States requires the dimming of lights in cities and towns. Dimming the lights on country roads when passing another automobile or a horse-drawn vehicle should also be required.

## Quadruple Winter Cases vs. Double-walled Hives

This year, for the first time, we are testing out large winter cases capable of holding four hives, the same as are used in Canada, alongside of ordinary double-walled hives holding a single colony. Already we find that the cost of the former per colony is greater than the cost of the latter. In other words, it is more expensive to house a colony of bees outdoors in a quadruple winter case than in a double-walled hive of ordinary pattern. The large winter case holding four colonies must be made of heavier stuff, not less than 5/8 inch thick, while the ordinary double-walled hive can be made of material of about half that thickness. The figures show that the big winter case contains as much lumber as four double-walled hives built on modern lines.

The labor of packing four colonies in the bigger cases is much greater than preparing the same number in the regular double-walled winter hives, and then there is the labor of unpacking, disassembling the big cases, and storing away the loose packing material in the spring. So much for this side of the proposition.

On the other hand, it is probable that the scheme of wintering four hives in one large winter case will give better results than the same number in double-walled packed hives. The heat of the four clusters in the big cases is practically combined in one. By pushing the four hives together in contact the clusters can converge, and at the same time we have a packing space with more packing material; and even if we do not have the combined heat of four clusters we would still have a better-protected colony.

If the bees winter better in these large cases they will come out in the spring stronger, and, of course, will be in better condition to take care of the honey-flow that may come later. A weak colony in the spring is usually a poor asset, as it can hardly do any thing more than hold its own during the entire season; while a big rousing colony with a good queen, other conditions being equal, is a money-maker.

Now, then, if the big wintering-cases insure bigger and stronger colonies in the spring (and that is not proven yet), the extra cost will be overbalanced in the profits they will make their owner.

Mr. R. F. Holtermann, whose plan of winter case we are following, and which is described on page 666, Sept. 1st, this year, feels that this quadruple winter case, even in his cold climate, is an unqualified success. He puts the bees away in the fall, and pays them no further attention until along in the following spring.

There are some who will say that these large winter cases can be made out of cheap lumber purchased around home at a time of year when the beekeeper's labor does not cost much. Perhaps. But any beekeeper who figures on taking it easy during the winter months should bestir himself in finding something to do. If he has no other business he had better go into the business of selling his own honey in his local market. Many do this, and find that their labor brings a good return in winter as well as summer. Most beekeepers cannot afford to do carpenter work during the winter unless they are trained to the business; and a cheap poorly made winter case of cheap lumber will afford poor protection from storms, and last but a short time.

## "The Temperature of the Honeybee Cluster in Winter."

ELSEWHERE in this issue, page 902, there is a review of Bulletin No. 96, from the United States Department of Agriculture, on the temperature of the bee colony in winter. This bulletin is by Dr. Burton N. Gates, who at the time the experimental work was done was Apicultural Assistant in the Bureau of Entomology at Washington, D. C.

"The Temperature of the Honey-bee Cluster in Winter" is the title of another bulletin, No. 93, by Dr. E. F. Phillips and Geo. S. Demuth, of the Bureau of Entomology, detailing some later experiments with newer apparatus. While the conclusions arrived at as announced in the last-named bulletin do not set aside the orthodox belief and practices of beekeepers generally, they do help to explain some of the phenomena in wintering not hitherto understood.

For a couple of winters back, Dr. Phillips and Mr. Demuth have conducted a series of experiments in wintering bees in a constant-temperature room at the University of Pennsylvania, Philadelphia. Several colonies variously prepared were placed in this room, where the temperature was held by means of coils of pipes containing a brine solution—much the same apparatus that is used in cold-storage plants. On the roof of the building containing this room there were placed several colonies of bees where the conditions of outdoor-wintered colonies could be observed. A series of electric thermometers or "thermo couples," as they are called, were placed in these colonies in the room before mentioned, and on the roof outdoors. By an elaborate system of wiring, these electric thermometers were connected to an observation room in the building, entirely separate and distinct from the constant-temperature room. Here Dr. Phillips, with his assistant, could follow with the greatest exactness the temperatures of every part of the hive and clusters of the several colonies inside and outdoors. By these temperature readings it was possible to determine the exact state and size of the cluster, when it moved, and the various reactions that take place as the result of feeding, disturbance, and the raising and lowering of the temperatures outside the hives. The idea of using electric thermometers was to avoid the disturbance incident to the use of mercurial thermometers that require the entering of the bee-room and the opening of the hive to get the readings. Moreover, it would be practically impossible for an observer to stay in a bee-room with a temperature of 42 F. day and night, taking readings every fifteen minutes; and even if he could do so, the constant disturbance would naturally cause a rise of temperature that would be above the actual normal of a colony not so molested.

We had the privilege of seeing this intricate apparatus on a recent trip to Philadelphia; and nothing in all the history of bee-investigation work has been so elaborate and so nearly perfect as this. It entailed a large expense and an enormous amount of work to take the readings—a work that no one individual could afford to undertake. Right here is where the Government and the State can do things that would be impossible for an ordinary person.

It is a little difficult to review or give a condensed summary of a work of this kind; and we would, therefore, suggest that the reader who desires to get more direct information send to the Superintendent of Documents, Government Printing-office, Washington, D. C., for Bulletin 93 of the Department of Agriculture, by Phillips and Demuth, inclosing five cents. Stamps will not be accepted.

For the present information of our readers we will endeavor to give a summary of the observations and conclusions set forth in this bulletin.

Let us first consider the outside-wintered colony which had 19 electric thermometers, with connections to the observation room below. Bees were placed on the roof early in November. From then on until along in March the inside and outside temperatures were taken. It was learned that the temperature within the cluster is far from being uniform, as is generally supposed by beekeepers. "At the temperature at which other insects become less active (begin hibernation) the honeybee becomes more active, and generates heat—in some cases until the temperature within the cluster is as high as that of the brood-nest in summer." During the fore part of the readings in November and December the internal temperature of the cluster of this outside colony had a tendency to drop as the outside temperature went down until it reached 57 F. At that point the reaction took place; that is, the generation of heat began, and from this point it began to rise in spite of the fact that the outside temperature continued to drop. The cluster heat continued to rise until the center of it registered nearly 90 degrees. After the coldest outside temperature was reached, the outer air began to get warmer, and simultaneously the temperature of the cluster began to sag.

We might remark, in passing, that Dr. Gates tried these experiments at an earlier period, as reported in Bulletin No. 96 elsewhere, and discovered a similar inverse ratio; but he did not find the exact point when the colony temperature ceased to drop with that of the outside. Dr. Phillips and Mr. Demuth learned that this point is 57 F. When the colony is without brood, and the bees are not flying, the bees generate practically no heat until the coolest point among the bees reaches a temperature of 57 F. "At this point the bees begin to form a compact cluster; and if the temperature of the air surrounding them continues to drop, they begin to generate heat." Between 57 and 69 F. the bees do not do much in the way of heat generation. Apparently, then, it will be desirable to have the surrounding temperature at such a point that the internal temperature of the cluster will not go below 57 nor above 69; but, as we shall afterward show, the question of food and syrup are additional factors to be considered.

But there are some other data given in this bulletin that go to show that bees have the power of raising the temperature of the cluster; but apparently conditions must be right to do this. We will come back to this point a little further on.

We will now turn our attention to the colonies, or one of them at least, in the constant-temperature room, where the mercury was kept at about 42 or 43 degrees F. "This temperature was chosen as being nearly the one generally considered best by beekeepers." There were two colonies—one fed on honey stores and another on an inferior grade of honey-dew honey, that are particularly mentioned in the bulletin. Colony No. 1, fed on honey stores, was in a constant-temperature room for 163 days, during which readings were taken hourly. At first the internal temperature of the cluster according to the chart hovered around 64 and 68. It rose gradually clear through the winter. The colony fed on honey-dew stores showed a higher temperature at the beginning; when up to about 76 F. it began to take a sharp rise, going up to 91 above, and on Nov. 23d the temperature began to show a sharp drop. the line running down as low as 48 on Dec. 10, when the colony died. Clearly the poor food caused uneasiness by reason of the accumulation of fecal matter that the bees could not digest, and this uneasiness caused activity, and activity called for a greater consumption of stores. The one condition operated against the other, finally ending in the destruction of the colony. The other hive fed on good honey pursued its normal course through the season.

It is interesting to observe that the normal temperature of the cluster of the colony fed on good stores only gradually increased, and this increase was doubtless due to the slight accumulation of feces. This accumulation was markedly less than that in the case of the colony on honey-dew stores, not because the bees became uneasy, but in proportion as the feces increased, the activity and temperature of the colony increased. This increase was not enough however, to cause the death of the colony, but a slight reduction in the force in the spring. These observations explain the

importance of good food—a food that will not clog the intestines. It also explains a common cause of dysentery.

The authors have also discovered that the length of the life of bees either during summer or winter depends on the activity of the bees. The greater the activity, the shorter the term of life.

They also find that when brood-rearing commences or is in progress, the temperature of the cluster will rise to about that which takes place in summer or spring. This was to be expected, of course.

During these experiments a remarkable thing was learned—namely, that there *can* be, and actually is, activity inside of a cluster of bees during winter When the temperature of a cluster goes down to 57, and the outside temperature surrounding the hive is dropping, the bees by actual muscular exercise can raise the temperature of the cluster. This activity may consist of a few bees tugging at each other, moving their bodies back and forth, or *actually fanning* with their wings. One bee may set up an active fanning inside the cluster during the dead of winter. Bees actually fan to cool themselves in summer and to warm themselves in winter, paradoxical as this may seem; and right here is a joke that is too good to keep. Dr. Phillips and Dr. Miller got their heads together and set a trap for the editor of this journal—a trap that he very promptly fell into, as the department of Stray Straws a few issues back shows. Dr. Phillips put it up to Dr. Miller to say that the bees would fan inside of the cluster during mid-winter; and the editor very promptly, not knowing about these experiments, considered it a joke, much to the merriment of the two doctors. We will forgive the joke, because we now know more than we did a few weeks ago. But it is difficult to comprehend that bees can warm thmselves up by exercise, like their owners; and the idea that their little electric fans, so to speak, can raise the cluster temperature as well as cool it seems at first ridiculously absurd; but we have too much confidence in Dr. Phillips and Mr. Demuth to believe that they would report any thing except what actually occurred.

In this connection it is proper to state that this fact was learned through the use of a hive that had double glass sides. The bees were compelled to form their winter clusters against these sides. It would thus be possible to watch the internal movements that actually take place inside, and what was seen was indeed a revelation.

Various observers have opened up clusters of bees in mid-winter, and found the bees inside in many cases as active as they ever are. Certain thermometric readings were taken, showing the temperature was nearly the same as during the summer. In the light of these observations just taken by the Government it is very easy to explain this, notwithstanding that there are times when the temperature of the cluster is below 60 to 70. We have only to remember that, when the inside temperature of the cluster goes as low as 57, the bees raise the temperature of the cluster even though the outside temperature is becoming colder and colder. The presumption is that, when the cluster is large enough, they keep up these "daily exercises" in order to keep the cluster warm. A prolonged cold spell, especially that down to zero, is nearly always disastrous to good wintering. This cold weather puts the bees in the cluster in a state of activity; and activity means an abnormal consumption of stores, with no means of voiding their feces, and then dysentery follows; hence we commonly find after a prolonged spell of cold weather that has lasted for weeks, combs spotted with dysentery, and no wonder. We hope Dr. Phillips will not stop right here. We hope that he will put those thermal couples into a hive located in a severe climate, and that he will try out the difference between a colony well packed in a double-walled hive or winter case and a colony in a single-walled hive of equal strength and the same class of stores. Such a comparison would be exceedingly interesting and valuable.

At the close of this bulletin the authors make the statement that "bees in winter, either in cellars or outdoors, should be disturbed as little as possible." This is a very natural conclusion; yet it will be remembered by our readers that for two or three winters back we have had good results in making increase in cellars by pursuing just the opposite policy. We fed bees on hard candy, and disturbed them as much as possible. This begets brood-rearing and increase at times when the temperature of the cellar is 55 to 60. While we do not advocate this mode of wintering for novices, and while we do not go so far as to say that such increase is made without some corresponding disadvantage, we know we have made increase in the cellar; but, "all'ee samee," we advise the average person to follow Dr. Phillips' advice. Fussing with bees in the cellar is usually attended with disaster; but that does not argue that the expert may not pursue the practice to advantage.

# Dr. C. C. Miller STRAY STRAWS Marengo, Ill.

CHARLIE A. BROWN, p. 863, don't you trust to empty sections over the brood-nest to keep bees from starting to swarm. I've had it fail hundreds of times, and there was no excluder, either. And I wouldn't want to gamble very high on your crosswise business, either.

WESLEY FOSTER, p. 838, favors cleaning and casing sections at outyards, which, I suppose, means as soon as taken from hives. Locality again. That's all right in the dry climate of Colorado, but it's hardly best here. I prefer to leave it in supers for a time, either cleaned or uncleaned, sticked up in piles to be well aired, putting fire in the room if a damp spell comes. [One should bear in mind that Colorado has a climate far different from that of Illinois and other States in the rain-belt. Hives that will stand and hold together in Illinois will check and pull apart in Colorado. In more ways than one, methods of management that apply elsewhere do not apply in Colorado There is more truth than poetry in Dr. Miller's phrase, "Locality again."—ED.]

ARTHUR C. MILLER, I accept your "treasury notes" as "legal tender," and glad to get 'em. But I'd like a discount on one of them. You say, p. 843, "By putting in each fall young queens carefully raised from good stock we are reasonably sure of having very nearly all the colonies of the same strength the next spring." Granted, and also of much the same quality. But I'd rather have inequality with a higher average than equality with a lower average. You also say that in selecting breeding queens, "you must begin several generations back," which is true again. It's also better to begin two years back with each queen than only one year. You can't do that if you requeen each fall. In choosing between two queens, you can decide better as to their relative value with two years' record than with one. That and other reasons prevent me from annual requeening so long as I am working for improvement. As a parting shot I'll fling "longevity" in your face and leave you to your thoughts.

"REQUEENING with young vigorous Italian queens, and the shaking treatment, is recommended" for European foul brood by Wesley Foster, p. 838. Wesley, I venture the prediction that in five years from now you'll deprecate such a waste of combs, and will recommend caging the queen for ten days in mild cases, and giving a vigorous young Italian queen in severer cases, in either case making ten days' break in egg-laying. [This may be all right; but is it not a dangerous suggestion to hold out to the general public—especially to the beekeepers who might be inclined to be a little bit slipshod or careless? We have never had European foul brood—but if we did we would have followed Wesley Foster's procedure. On the other hand, if we were in Dr. Miller's place, with his knowledge of the business, we should probably do exactly as he has been doing. If locality in one case modifies a method of treatment the man and his peculiar temperament must be another factor that will have to be carefully considered. Not knowing the man, we would advise, in the case of European foul brood, to go the whole limit.

J. L. BYER says, p. 839, that aster honey "is light in color and nice in flavor, but usually a bit light in body." I think its reputation in general agrees with that given in the A B C book as amber-colored, of heavy body, but of flavor unsuitable for table use—quite a difference, you see. For the first time I have had this fall honey that I *think* is aster. It agrees exactly with the Byer description. Is it latitude or soil or what that makes the difference? [The name *aster* when applied to honey covers a multitude of sins. There are so many species of aster, and so many other flowers that are not asters that are in bloom at the same time, that it is almost impossible to know whether one has a pure aster honey. At our swamp yard this fall we observed that our bees were working on asters; but there was other flora that was very abundant—just enough to modify the flavor. Several times on opening a hive we tasted the new honey as it came in. At times it was very pleasant and of good flavor, while at other times it was "off." It is our opinion that the statement in our A B C book is practically correct; but we must remember that the quality of aster honey varies somewhat according to the season, and somewhat according to the locality. As a general thing we may conclude that, when aster has a good flavor, there has been something else added to it to make it so.

We must not forget that aster honey is often unsealed, and therefore not ripened. Such honey is apt to have a deleterious effect on the bees before spring. A well-ripened aster honey is one thing, and an unripened article is another. The ordinary article that one buys for the table is pretty apt to be a combination of the two. —ED.]

J. E. Crane **SIFTINGS** Middlebury, Vt.

Mr. Halter's estimate of the value of sheep on page 719, Sept. 15, is not overdrawn.

* * *

A capital idea that, of encouraging working men to use sugar instead of alcoholic beverages, as told page 702, Sept. 15. Let us all help it along.

* * *

When John H. Lovell, page 721, Sept. 15, discusses the question of the relation of bees to black we know we have gotten down to bedrock. It is settled.

* * *

That cover picture for Sept. 15 is about the best ever. If that is what Norway looks like I no longer wonder that its citizens are attached to their home land.

* * *

Whatever may be said as to the practical value of the hive illustrated on page 716, Sept. 15, and used 2000 years ago, it certainly is quite as ornamental as any thing we have to-day.

* * *

We are having to feed heavily for winter. I wish that we had some Ohio swamps for our bees. In some locations where our bees have had aster and goldenrod, so many have worn themselves out trying to gather the honey that many colonies are greatly weakened in numbers.

* * *

We can readily believe what the editor says, page 702, Sept. 15, in regard to the value of swamps for bee forage. While we have had to feed many colonies in our yard twenty or more pounds of syrup to the hive, in case of one yard near a small swamp we shall not have to feed at all, as nearly all of the hives in that yard have an abundance of winter stores, and many have more than enough.

* * *

"Occasionallly we find a colony that forges ahead and stores much more honey than the others, though having only an equal show with the others," says P. C. Chadwick, page 575, Aug. 1, and he is right. If he will watch closely he will doubtless find that swarms from such a colony will do the same thing. That is our experience, and such a colony is the one we like to rear our young queens from.

* * *

I learned to-day of a farmer within range of one of our yards who has sowed several acres of sweet clover this season. I trust this is the entering wedge. It is now 45 years since Mr. M. M. Baldridge, in the *American Bee Journal,* recommended the sowing of this plant for bee-pasturage, and it looks as though something good were to come out of it. If I could only get enough from this source to fill up hives for winter I should be more than pleased. Since the basswood failed we have had to feed from one to five tons of sugar to winter our bees.

* * *

When Mr. Holtermann tells us, page 666, Sept. 1, that the yard should be not more than 45 or 50 feet square with a fence eight feet high around it, I beg to differ with him if it is a tight fence. It looks to me as though that is almost too much of a good thing. I have known just such a yard hopelessly ruined in spring by such a fence. If the weather should be sunny, with cool north winds, such a yard will be many degrees warmer than outside, and the bees will be liable to be tempted out; and, when outside the yards, to become chilled and drop to the snow to meet a fate like poor Clementine—"lost and gone for ever."

Again, Mr. Holtermann, on page 667, advises adding a teasponful of tartaric acid to each 12 lbs. of sugar made into syrup for feeding. I have no doubt this is a correct formula; but I have fed *with* cream of tartar, or tartaric acid, and many tons of sugar syrup *without* it, and so far have failed to see enough benefit in it to compensate for the cost and trouble.

* * *

We are told on the first page of GLEANINGS for Aug. 1 how Milton Robb nearly lost his life in attempting to get a swarm down out of a tree. This reminds me of a rather uncomfortable experience many years ago. I went up a standing ladder some seven feet high and shook a swarm into a basket. In starting to descend I slipped and fell head first. The basket of bees went with a slam to the ground, while I in some way got my feet caught in the ladder and hung suspended by my legs nearly over the swarm on the ground—a very undignified position for a scientific beekeeper to be in, certainly. By quickly pulling myself up by my hands and releasing my feet I jumped to the ground without any serious results except a few stings. I knew one man many years ago who lost his life trying to get a swarm out of a tall elm-tree.

*Moral.*—Better keep our queens' wings clipped where there are tall trees about our apiaries.

# BEEKEEPING IN CALIFORNIA

P. C. Chadwick, Redlands, Cal.

While some are objecting to the net-weight law as applied to comb honey, I believe we should welcome the innovation rather than condemn it. There are very few of us who are not more or less interested in the amount of goods we get in any container, and we are no more anxious to pay a full-weight price for a short-weight package than others; so we should not object to giving our customers a guarantee of the amount they are purchasing.

* * *

Dr. Miller says, page 793, Oct. 15, "But a good queen is not by any means a failing queen when two years old, and as a rule will be superseded in good time without my meddling." Possibly this may be true with Dr. Miller; but it is entirely at variance with my observations in this climate. A queen may show up quite well the third season in some instances; but as a rule we are adding a commercial value to any hive from which we remove a two-year-old queen to replace with a young one. The most successful beekeepers in these parts are those who avoid the necessity of a queen being superseded from natural causes. This is too apt to take place during the honey-flow when we want to keep every thing booming.

* * *

J. E. Crane tells of a squash-blossom containing seven dead bees, "evidently caused by several unseasonable days." In this State we suffer perhaps more than any other part of the country from bees being chilled in the field. California's climate depends largely on its sunshine. When the sun is hidden in the spring, bees become chilled quickly. Intermittent cloudy days are the worst we have, and the mortality rate is often enormous. The sun will come out bright and warm for an hour or so, giving the bees opportunity to rush to the field. They gorge themselves more or less with cold nectar when suddenly a cloud obscures the sun, and many become chilled on the flowers. If the sun appears again in time to warm them up, all is well; but if not, they are lost to the working force of the hive.

* * *

Now, Dr. Miller, page 661, Sept. 1, I have been investigating the quality of honey offered to the consumer in bottles and other small receptacles, and it is my finding that the quality of honey bottled and offered to the trade in this, the land of the whitest of the product, is generally a grade that would go in the amber grade, or light amber at least, while much of our whitest product finds its way across the continent and perhaps the ocean. A great amount of this is blended with darker grades when packed to bring the darker up to a standard that will please the consumer and make a fair profit for the amount of white used and a big profit for the dark. Locally I have no doubt that you are right, as is the case here where the white is purchased from the local beekeeper by the grocer and sold by him to his patrons; yet of all the honey handled by the merchants of this town, the largest part of them secure their supply from the wholesale grocery houses of Los Angeles by preference, for the simple reason they can make a good profit and reduce the expense of filling small packages such as the public most desires. It is high time the beekeepers were beginning to fill this avenue of profitable trade.

* * *

The United States crop report, recently issued, in that part referring to honey, reprinted on page 748, Oct. 1, seems to me hardly gives the true conditions in this State. I am not finding fault with the report in particular so far as the authenticity of figures is concerned, for I believe it is a wonderful addition to the beekeeping industry. But yet I can hardly figure that the difference in last season and this is not more than 100 per cent increase of output for this year. There may be some conditions in parts of the State that I do not know of that affect the report. I dare say it is correctly compiled from figures at hand. The Agricultural Department has sent many blanks to this State to be filled out, that a correct estimate of the crop might be given; and if it is not correct we have ourselves to blame and not the compilers of the report.

Another striking part of the report is the notation of a great decrease in the quantity of comb and chunk honey. It looks as though there were an opening for some comb-honey producers at this time. It costs heavily to equip for comb honey to an extent that one should be equipped, which is greatly against its production Another feature is the fact that comb-honey production is expensive some years, as has been the case this year in this State. Some bee-

keepers who could have gleaned a respectable harvest of the extracted product have had a heavy loss waiting for sections to be sealed that were never finished. One of our largest comb-honey producers told me recently that he lost not less than twenty tons of honey by running for comb instead of extracted. This man is not discouraged, however, as he is a comb-honey man by preference, and will succeed in the end. I would not advise those who are producing comb honey to quit if they are comb-honey men. There are some, however, who are producing a poor grade of comb honey who might better be extracting; while on the other hand some of our dainty producers could make a tremendous hit by producing comb honey. One should be prepared for both, that he may be able to shift with the season, and salvage a part of a crop. There is always a good demand for a good grade of comb honey in our local markets, while a poor grade is not wanted. It behooves the man who takes up comb-honey production to put out a fancy article or lose in both ways. Those who are not cleanly enough to put up a palatable grade of extracted have no business trying to produce comb honey. On the other hand, some of our neat, over-particular beekeepers who take delight in a nice article, could, without doubt, make comb honey pay and pay big.

* * *

Mr. Doolittle says, page 578, Aug. 1, "But I am satisfied that stimulative feeding does not pay. Do not misunderstand me. I do not say it is of no benefit, but that it does not pay." This may be entirely correct in Mr. Doolittle's locality; but in California outside of alfalfa districts and a few other favored places, there are times when feeding is of great value as a stimulative agent. This is especially true following our long dry seasons, when brood-rearing has been practically at a standstill through the hot summer months and the force of bees has run low. Besides being low in numbers, the bees are too old to depend on to carry the colony through the winter with sufficient force to permit the rapid breeding-up early in the spring, which is an absolute necessity in this locality. Seasons like the one just past require no stimulative feeding, for breeding has not ceased since early spring, and hives are well supplied with young bees for spring breeding. The summer of 1913 was one of the trying ones. One could hardly imagine a season of less activity in our foothill apiaries. A small cluster of old bees was all we had to depend on to get our colonies through the winter and start them in last spring. No honey was coming in, and many colonies were short of stores. To encourage the starting of a large amount of brood meant additional stores to feed the brood, so the question naturally presented itself as to how and when feeding should be done. If feeding to increase stores is the object it should be done inside the hive, and given as rapidly as possible to avoid brood-rearing to an extent that would largely offset the object of feeding. If for the purpose of encouraging brood-rearing I much prefer outdoor feeding, using a ten to fifteen per cent syrup. The great objection to outdoor feeding is that much of it is taken up by bees from neighboring yards if there are such. This may be overcome to a great extent by feeding early in the morning an amount that can be cleaned up by mid-day. In practicing outdoor feeding it is a good plan to draw combs from several hives with adhering bees which are to be shaken on to the feeding-pan to get them started quickly.

Brood-rearing in response to stimulative feeding will not be equal in all colonies. Some will respond readily while others will require several days. My experience has been that the response is much more rapid where the colony has a good supply of stores in the comb, especially when there is some pollen coming in. Bees well supplied with stores are, as a rule, the first to begin breeding to their full capacity, whether through stimulating or natural inclination; and a colony well supplied with stores will breed sufficient to keep up the strength of the colony. A colony poorly supplied will dwindle much more rapidly. Pollen is a great factor in breeding, as I have pointed out in previous articles; and unless there is a supply stored in the combs, or a source open for gathering, it will be very difficult to force breeding to any great extent. The stimulating that I have had in mind is for the fall, to augment the force of bees for early spring breeding. But there is occasionally a spring when stimulative feeding is of great importance. Once in a while our rainfall does not begin until the month of March, after which we must await the growing and blooming of filaree and other of our early dependencies. By the time these are a source of aid, the season is too far advanced to allow the bees to build to a surplus-gathering strength in time to catch the usual short flow that follows. In a case of this kind it is desirable to stimulate from the time the late rains begin falling until natural sources relieve the situation. There is seldom a time in the foothill region when there is not some pollen available.

# BEEKEEPING IN THE SOUTHWEST

Louis H. Scholl, New Braunfels, Texas.

Roy S. Weaver, of Courtney, Texas, has been one of our faithful assistants in the apiary work this season. He left a good position in Uncle Sam's mail service, with the intention of "making a beekeeper of himself." While he was not a "new beginner" when he came to us, since his father is one of our progressive beekeepers, there were many things with which he was not acquainted. His experience here has made an enthusiastic young beekeeper out of him, and he goes from here to Cuba, where he will join his uncles, the Somerfords.

* * *

The writer has just helped "the boys" extract honey for an afternoon. It had been some time since I had done this, as my other duties have always prevented my doing the work in the honey-house. The men were using the modern crook-neck uncapping-knives; and as the knives were sharp and in fine trim I started out with them. It was not long, however, before that old butcher-knife that I used to write about was put into play again for an uncapping-knife. Then the different kinds were tried alternately for a while; but the butcher-knife won out in the race for superiority *as the most suitable uncapping-knife for our own use, and especially for uncapping the shallow combs that we use.* I go at it as a butcher goes at cutting off a fine thin steak from a quarter on the meat-block, and I use the same downward stroke.

* * *

### A GOOD LAW BUT NO MONEY.

Texas has been without funds with which to carry out its foul-brood-inspection work for the last two years. We have a splendid law; but what is the best law worth without money to pay for its enforcement? It is to be hoped that the next legislature will provide sufficient funds for this purpose. Our hope is strengthened by the fact that the beekeepers discussed this matter very thoroughly at the last State meeting in July, and selected a committee to look after such legislative matters as may be necessary in order to get the appropriation. Horace E. Graham, of Gause, was selected as chairman of this committee. To serve with him, T. P. Robinson, Bartlett; F. L. Aten, Round Rock; and W. H. Laws, Beeville, were named. This legislative committee will act in conjunction with Prof. Wilmon Newell, Entomologist of the Agricultural and Mechanical College and State Experiment Stations, College Station, who has this work in charge in this State. In the legislature the beekeepers can depend upon the writer, who will be a member of the House of Representatives, to do all in his power to obtain for the beekeepers of this State such funds as will be needed to carry on the foul-brood-inspection work. I have given the names of all these parties with their addresses, so that any person interested in this matter may address any or all of them properly. Let us hope that foul brood will be checked, at least so that it can not do us any harm if it can not be stamped out altogether.

* * *

### ARMY-WORMS IN CLOVER AND IN COTTON.

Mr. Editor, it was gratifying to learn, p. 745, Oct. 1, that army-worms do not do any damage to the clover, although they do such immense damage to other crops. We have here what is known as the cotton-leaf army-caterpillars, which destroy the tender growth, the leaves, and often the younger cotton bolls, of the cotton-plants. When these armies of worms pass over our cotton-fields they leave them stripped of every thing except the tough stalks of the plants and the full-grown bolls. We had the caterpillars in the cotton-fields this fall; and, although the bees were gathering considerable cotton honey until they made their appearance, this soon ceased. We feel that we might otherwise have obtained a much larger yield from this source.

* * *

### SUPER DRIPPING-PANS.

Until recently we have had more or less trouble with the floor of the honey-house becoming soiled with honey that leaked from the supers of honey that had been brought from the apiaries and piled up to be packed up later. It is well known to those who have had the experience that it is quite disagreeable to work on a sticky floor. To keep this leakage from reaching the floor we have adopted galvanized-iron drip-pans, about two inches deep, and large enough to allow two supers to be set in them side by side as the foundation of two stacks of honey-supers. The first two supers are set on two strips about 1½ inches thick so as to have them raised up and out of the honey that may accumulate in the drip-pans. Since using them we have had a nice clean floor; and Mr. Heywood, our senior assistant in the work, declares these the best "invention" that the writer has yet made.

# CONVERSATIONS WITH DOOLITTLE

## At Borodino, New York.

### SNOW-WHITE SECTIONS.

"Will you give your views regarding what are termed snow-white sections? The prices generally quoted per 1000 for such sections are considerably above those not quite so white."

For several years I searched the forests over for the youngest, thriftiest basswood-trees which were of sufficient size for sawing, so as to be sure to get wood of the kind that would give these "snow-white" sections our questioner speaks of. These trees were sawed into two-inch planks at the saw-mill; and as soon as the planks left the saw they were piled up with strips between them so that they might begin to dry before even the outside turned the least bit. If I could get the logs sawed into planks while the timber was still frozen, and get said planks "stuckup" while the frost was still in, a perfect whiteness was obtained.

All went "my way" until one year a buyer called to look at my crop. He offered me within one cent a pound as much as I asked. I refused this offer, and, calling his attention to the snow-white sections, told him what care I had taken, and said that honey in such sections should command more than that in those that were cut from wood not thus selected. He replied that purchasers of honey never looked at nor cared a "rap" about the color of the wood enclosing the comb of honey, but that it was the *honey* they were interested in. He added that snow-white sections were in demand only by beekeepers. Neither the merchants nor the consumers call for them. Since then I have kept an eye out, and I have found that there is much truth in the statement. Of course, if the beekeepers demand snow-white sections, then the supply manufacturer must meet the demand; and past experience tells me that the extra price put on such material no more than covers the extra labor and worry necessary to give what the beekeepers demand. To be sure, the sections ought not to look rough, dirty, nor mildewed; neither should they be left dauby with propolis; but in all ordinary cases I doubt the advisability of paying extra for snow whiteness.

### IS WATER FOR THE BEES OR FOR THE BROOD?

"Why do bees visit wet places during the summer months? Is it because they are thirsty during hot weather? I am told that in hot weather bees cannot live if they do not have all the water they need."

What you have been told I can consider only a fallacy. Some time the latter part of the last century I sent five cages, each containing twenty bees and a queen, together with candy made of honey and powdered sugar, to western Australia. These bees had to travel through the tropics, after leaving San Francisco, to say nothing about the mercury being up in the nineties during the five days it took to go from here to California. A distance of over 17,000 miles was covered during this journey, and the length of time consumed was 41½ days, or within half a day of being as long as the average life of working bees during the hot summer season; yet, to my surprise and satisfaction, three out of the five queens reached their destination alive, together with a majority of their twenty attendants.

It is said that drones are never seen drinking water; this corresponds with my experience, for during my forty odd years of beekeeping life I never saw a drone sipping any thing but honey. If I am not greatly in error, the food of larval bees is composed of honey, pollen, and water, these taken by the nurse bees, and formed by a process of their own into chyle; consequently we find bees at watering-places only at times when there is young brood in the hives. If adult bees needed water to quench their thirst whenever we have summer heat, they would be seen about watering-places during any heated term in October or November; but so far, in this locality, I have never seen bees taking water during these hot spells after brood-rearing had ceased.

Ten or twelve years ago we had a hot spell of three days' duration the middle of January, so hot that the people in the cities quit their homes and got out in the parks and other places to keep cool, the mercury reaching 87 degrees in the shade out here in the country. I had several colonies wintering out by way of experiment, and the bees went outside of the hives as they do in summer, yet not a bee did I see hovering about the watering-places they use from April to September when there is brood in the hives. That it is not the heat that takes them to these watering-places is proven, for in April and May—yes, in June as well—*during cool weather,* when the rain or clouds have kept them from getting water, they will rush out on the first break in the clouds to get their loads of water, and scurry back to the hive before the sun is shut under again by another passing cloud.

# GENERAL CORRESPONDENCE

## DR. MILLER'S SHORT CUT IN TREATING EUROPEAN FOUL BROOD

BY DR. C. C. MILLER

An Illinois beekeeper who says he has read all my writings in GLEANINGS writes me as follows:

> I have about 40 colonies of bees, and this summer, for the first time, I noticed foul brood among my bees. I may have had some last summer, but did not notice it. I treated eleven colonies—all but one successful.
>
> I still have about four colonies affected. Is there any way of saving any of the combs so they can be used again?
>
> Must combs that have been used in supers be destroyed, or can they be used in supers or brood-chambers again?
>
> What I want to know is how to cure foul brood economically and quickly. Are there any short cuts?

The shortest answer to this letter would be to say that I have written pages in GLEANINGS about my experience with foul brood, answering fully the questions asked, and it will take a good deal less time for him to look up what I have written than for me to write it all over again. Or I might reply that my experience is given in "Fifty Years among the Bees," and I would rather make him a present of that book than to write a private letter of reply.

The fact probably is that he is entirely honest in saying he has read all I have written, yet it has not occurred to him that, like thousands of others, he has skipped every thing printed about foul brood until the disease struck him. It would be space well used if a whole page of large type should be occupied telling beekeepers that they should read up in advance on the subject of foul brood, provided it were certain it would be read and heeded by all those who as yet have not been visited by the pest.

Instead of that the average beekeeper waits until he finds something to make him suspect there may be disease among his bees, and then all at once he writes to some one who, he thinks, has had experience, and expects by return mail all the help he needs. I've had many a letter of the kind. Please, please, friends, be reasonable. If I should reply by mail to such letters it would take all my available time. I am glad to answer to the best of my ability letters desiring answers in the bee-journals. Such replies are read by hundreds instead of being read by a single individual, and whatever of value there may be in them will be multiplied many times; but as to making private replies I must treat all alike, and so decline to reply by mail.

Before answering the specific questions asked by my correspondent, let me say a few words to those who as yet have no disease among their bees, in the hope that they may be read by at least a few of those to whom they are addressed.

If you are wise you will inform yourself in advance as to diseases of bees, and will know something about what to do. Whether you have been thus wise or not, when you find something that you think is disease in brood-combs, send by mail a sample of the suspected comb three or four inches square to Dr. E. F. Phillips, Department of Agriculture, Washington, D. C. Send it securely done up in wood or tin, writing Dr. Phillips about it. Or write him first and he will send you a tin box in which to send the sample, together with a frank to cover postage, and he will also send you printed matter giving you needed instruction, and for all of this there will be no charge.

Now as to the questions asked: I don't know how to reply, for I haven't any inkling whether it is American or European foul brood that is in question, and the two are entirely distinct diseases. The only thing is to answer as to each disease, keeping in mind that my personal experience has been only with European foul brood, knowing nothing about American foul brood except what I have learned from others.

If the disease is American foul brood then I doubt if there is any short cut "around the McEvoy treatment" unless it is to get along with one less shaking than was originally used. But if the disease is European foul brood, then I may say that there is a very short cut. It has been given again and again in GLEANINGS; but as there are always those who, having skipped it in the past, may now feel the need of it, it may be well to repeat it. The late E. W. Alexander discovered a plan away ahead of the McEvoy plan, and I made a short circuit on the Alexander plan. The saving to beekeepers by this plan has likely been worth thousands; and I may here remark, more in sorrow than anger, and more in amusement than either, that for my part in the plan I have no vivid recollection of any word of commendation; but I do recall that I have

been severely denounced for it, not only by those I never saw, but also by some of my best friends. The amusement comes in thinking of the crawfishing there may be some of these days.

Well, here's the latest short cut: If the colony to be treated for *European* foul brood is not strong, *be sure to make it so* by adding brood or bees, or both. If the case is severe, remove the queen, and at the same time give a virgin less than 24 hours old or a protected queen-cell of best Italian stock; or give a young Italian laying queen eight or ten days after dequeening. The bees will do the rest. If the case is mild and a proper queen present, merely cage the queen in the hive and release her in a week or ten days. That's all there is to it.

"Is there any way of saving any of the combs so they can be used again?"

No, if it's American; yes, if it's European.

Another correspondent asks, "What do you do to save the combs?" Nothing. Just use them the same as if there had been no disease. Vigorous bees with a vigorous queen will clean them out. Spores may be left, and here and there the disease may break out again; but in the long run the loss will be less than if the combs were destroyed, and possibly the returns of the disease will be no more frequent than if all combs are destroyed. In my own apiary I think there were no more fresh outbreaks where the old combs were left than where the bees were thrown upon foundation.

If the old brood-combs can be safely used, of course combs in supers are all right.

Marengo, Ill.

## A WINTER CASE FOR FOUR COLONIES HAVING A PERMANENT BOTTOM-BOARD USED THE YEAR ROUND

BY A. C. AMES

The greatest fault I have to find with the tenement winter cases used by others is in the confusion which results in moving the bees into them in the fall and out in the spring. In building my case I have eliminated this trouble. The bottom serves the double purpose of being the bottom for the hives, and also the bottom of the case. Then by placing hives on this board four to a bottom, more hives can be placed on a small plot of ground, and still give room to work the hives. More hives can, of course, be crowded together on the regular bottom, but they would not have the same individuality.

I build my bottoms 38 x 46, with a four-inch alighting-board, which makes the bottom 52 inches long. Two 2 x 4, 52 inches long, serve for the bed timbers, and are placed 8 inches in from the edge. In placing the strips for the hives to rest on I keep the center ones one inch apart, and the outside strips are 16 inches from the inside

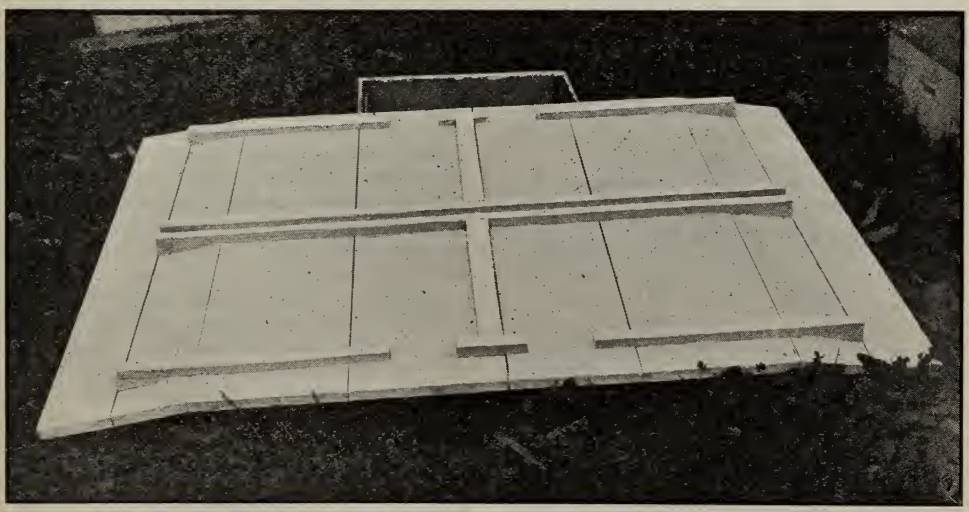


FIG. 1.—A. C. Ames' bottom-board, holding four hives. This is used in connection with his winter-case, but is also the permanent bottom-board for the four colonies throughout the season. The notches are for the Boardman feeder-blocks as shown in the next illustration.

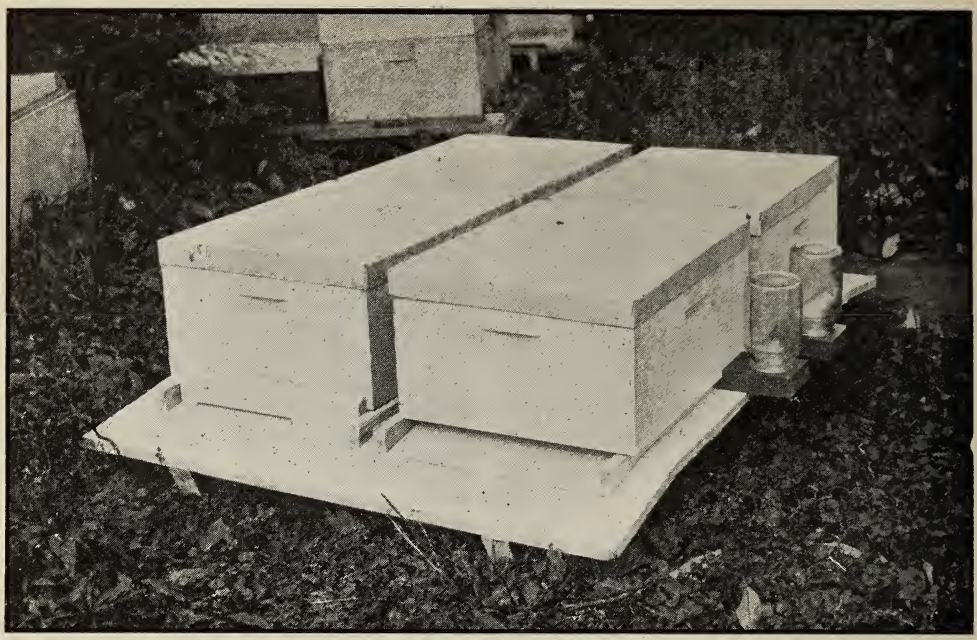


FIG. 2.—Four hives in postion on the bottom. It takes but a short time to set the winter case on and fill in the packing.

ones. In summer I move the hives about 2 inches apart on the sides, and 4 to 6 inches lengthwise, which gives plenty of room to work, and for wintering they are moved together in the center, which gives three inches of packing on the sides.

When first building I used a perfectly flat bottom. I soon found this to be a mistake. It is impossible to set these flat bottoms so that water will not run in at the entrance in the summer. I now taper each end down about 1½ inches and let the taper run back about 8 inches, half of which is used for the alighting-board. This gives a large entrance, which helps to retard swarming.

It will also be noticed how easy it is to use the Boardman feeder, the feeder being placed well back in the side of the hive. This eliminates robbing, and the feeder is out of the way. It can be left on all summer if one wishes.

The cases are built 24 inches high, and rest on the bottom across the ends, telescoping by the bottom on the sides. These can be made either sectional or in one unit. In case the apiary may be moved I would recommend the sectional; but for a permanent location I would rather have the case fastened together solidly. In the summer the cases can be placed one on top of another, making a good place to store the packing material. The case should be built of matched stuff; or, if plain boards, they should be shiplapped to shed water.

I make the top perfectly flat, and just large enough so that it will cover well. It is roofed with a good grade of paper roofing.

Seventy feet of lumber will build the entire case, top and bottom, if one is careful and buys in lengths that will cut to advantage. The first I built were made from hard pine. This stuff shrinks too much, and is heavy to handle. I prefer No. 2 soft white-pine. It is good enough, and is light in weight. Don't forget the paint.

A great many beekeepers winter their colonies in too many frames. It is very seldom that ten frames are wanted or needed. In this case the bees have only a room which is just 40 per cent too large for them, and it must be kept warm. Is this economy? I think not. More often six combs are enough. Remove the outside combs and put in a division-board, and pack that empty space. Then add combs in the spring as they are needed. Your bees will be all the better for it. This applies whether wintered in cases or otherwise.

One would think that bees would not fly readily from these cases on warm winter fly days on account of their being packed so heavily that it would take some time for the outside temperature to have an effect on them. I find that my bees will fly just as

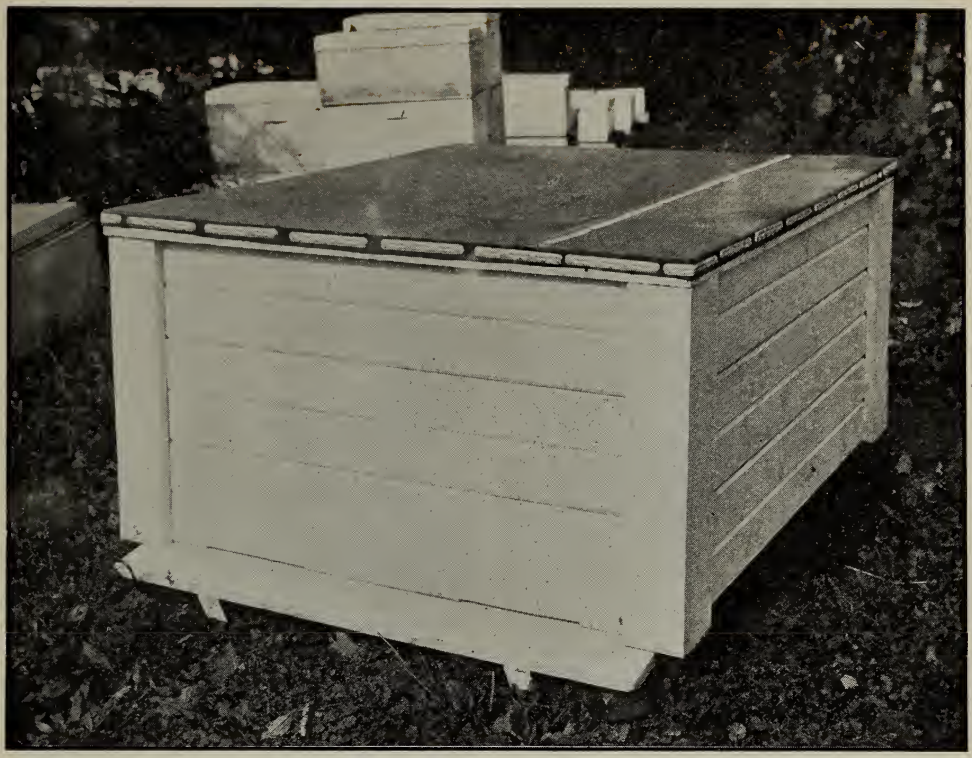


FIG. 3.—The outside case in position over the four hives. Note the metal binding strips used to hold the roofing paper in place.

quickly from the cases as from double-walled hives. However, I would rather they would not fly; for unless they have very poor stores they do not need the flight; and if they don't need it they are better off inside.

One of the most valuable features of these cases is the protection in the spring. I have never seen a particle of chilled brood in these cases. Furthermore, the same amount of bees will protect and take care of much more brood than in single-walled hives. They will go to brood-rearing earlier than where wintered in any other way. But room should not be given faster than it is needed. It is more work to give combs just as they are needed; but we must look to the small things if we are really to succeed.

The packing and case should not be removed until it is certain that the bees can protect all the brood the queens will produce. This is one of the few things it pays to put off. I do not remove mine until well into May, depending on weather conditions.

I do not want a sealed cover, neither do I want a burlap or canvas over the entire top of my hives; so I cut a four-inch-square hole in the center of my super covers, this hole being covered by a piece of closely woven burlap. So arranged I have never had damp packing nor moldy combs.

It is a good plan to fix the bottom so that the wind cannot blow under. In this climate I do not consider it advisable to pack the bottom except to push some straw or other packing under the edges of the bottom to keep the wind out. If I lived further north I would use more packing on the sides and top, and would use a double bottom.

### ALL-METAL COVERS.

My hive-covers are made of common black iron. They are just trays used bottom side up. They cost me less than 10 cts. each, and it is about half an hour's work to make one. The corners are bent in and riveted, and the edges turned back. The cover has two coats of paint inside and three outside. I use red lead ground in oil for the first coat, and finish with white lead. Red lead makes a better priming coat on wood than white lead. After it is painted and thoroughly dry I paste a sheet of asbestos in the top. Paste made for this purpose must be used or it will not stick. Ordinary flour paste will not do.

Black iron is better than galvanized if it is properly painted, for the reason that galvanized iron will sometimes scale where it is bent. When these covers are made, the corners must be made square or they will not lie flat.

Peninsula, O.

## FURTHER EXPLANATIONS AS TO OUTSIDE WINTERING

BY R. F. HOLTERMANN

*Mr. R. F. Holtermann:*—Your article in GLEANINGS for Sept. 1, with its fine illustrations, will surely prove valuable to me, and doubtless to many other readers as well, who wish to change from cellar to outdoor wintering, and have single-walled hives. I have waited for the description of your winter cases; and having been away from home I am just now getting them made, and find that I need some further advice and am taking the liberty of writing to bother you with my troubles. It may be possible that, in answering these inquiries in GLEANINGS, you would be helping the readers again.

I am located 33 miles south of Buffalo, N. Y., in a rather high, level stretch of country where the west and northerly winds of Lake Erie strike hard, and from 18 to 20 degrees below zero or even colder is not at all uncommon, and our lot is so situated that I cannot very well put up the fence you recommend; but wind is broken from some hives by thick growth of berry-bushes, and I am using good inch material with tongue and groove closely fitted, and painted, so not much wind should go through the packing-cases.

1. Would from two to four inches more of packing on sides, ends, and tops help offset the lack of the fence as a windbreak, or is there some objection to thicker packing?

2. Do you have or recommend any ventilation over the top of the packing? if so, how much?

3. Do you put sticks or any thing across the tops of your frames to keep cloths up off them so as to allow a passageway over the frames for bees?

4. How large a passageway do you provide from hive proper to entrance-holes in a packing-case?

5. How large in diameter are these three holes in the packing-case, which, from the cut, I take to be outer entrances leading to each hive?

My bottom-boards are reversible. One way up allows a 1-inch space under the frames; the other way, only ⅜; hives have no portico, and are ten-frame. I have planned to make a passageway from hive to case entrance by cutting boards 6 inches wide, 1 inch thick, just long enough to fit into the hive entrance, planing out crosswise of the board a space ⅜ inch deep, 8 long; and it has seemed to me that, to use hive-bottoms with a one-inch space under frames so as to have more room for dead bees would be best by putting the half-inch solid board under the board that has the passageway cut in.

I would raise the passage up half an inch off the bottom of the hive, making it less liable to clog with fallen bees; but this raising up of the entrance can not be done if I have only ⅜ inch under the frames.

6. Would you advise a 1-inch space under frames or only the ⅜?

7. Is this ⅜ x 8-inch passage about right for strong colonies? If not, please suggest best dimensions or arrangements.

8. How much smaller would you make it for, say, a colony that nicely covers five frames, now in warm weather, and has two frames of brood?

9. How closely would you contract this entrance for the weakest colony you attempt to winter? How small colonies can you reasonably expect to winter safely, provided a good portion of their bees were hatched late in September?

I have some good queens in four or five frame nuclei?

10. As zero air rushes into a warm room much faster through an opening than warmer air would in zero weather, when snow is not over these three-hole entrances would it be wise to cork up one or two of them, removing plugs when weather moderated? or if snow is about up to them, how about shoveling it against the case enough to cover over the holes?

11. I take it that you cover frames with cloths, then put loose packing on top of the cloths without any boards over frames. Would four-thickness ordinary grain-sacking be all right? When you remove several frames outside of the hive, do you use a chaff division-board? and if space is left between the division-board and hive side, do you pack that space? and would sacking, carpeting, etc., be all right for that particular place, as I judge that it would be easier to remove in spring?

12. In packing the cases do you crowd in all the leaves you possibly can all about and over the hives? or do you press them down only moderately?

13. About how many frames are left in each of your hives in winter on an average?

Chaffee, N. Y., Sept. 28. A. J. O'DELL.

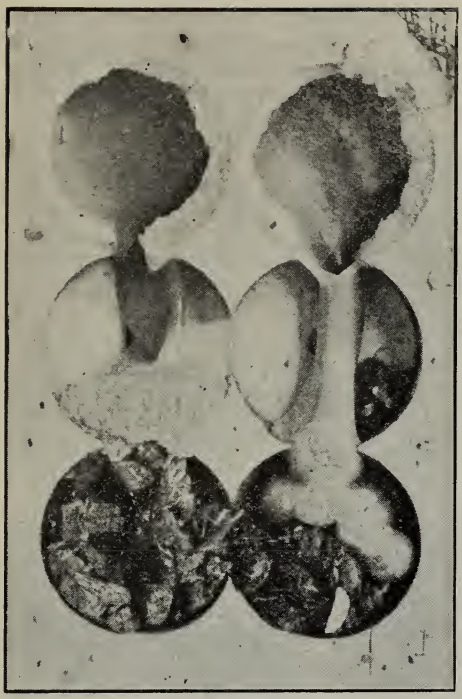
Berry-bushes make a very poor substitute indeed for a protection against winds and snow for a fence 8 ft. high, particularly when the space fenced in is not greater than 40 to 45 ft. square.

The following are the answers to the questions asked:

1. No. The object of the fence during winter is to prevent snow drifting against the winter cases, to keep the cold wind from blowing into the entrance to the hive, and to enable the sun to have more effect in drying out the inside of the cover of the case upon which there is more or less condensation of moisture which escapes from the bees and passes through the top packing.

2. Yes, a hole ¾ inch in diameter in each end of the case and under the cover. This allows enough air to circulate under the cover to carry off the moisture mentioned in the previous answer.

3. No. I use queen-excluders; but sticks or a Hill device would answer the purpose. The object aimed at is to give the bees a chance to change positions in the cluster when clustering in winter. With comb naturally built by the bees they leave passageways so that the entire cluster can communicate through these passages; but with combs built on foundation they are straight, and each lot of bees between the combs is isolated from the lot on either side. Because warm air rises, the bees can pass over the



A Story without Words.

combs more readily than they can pass under, especially during winter weather.

4. Four to six inches wide by the depth of the entrance, which is 1¼ inches.

5. Seven-eighths of an inch; but I have found with many colonies this entrance is not large enough when the bees are flying freely; and in many cases I have had the wood cut out between two holes. Where the beekeeper is living near the bees it would be well to have an adjustable entrance; but do not change the position of the opening, as it may confuse the bees and lead to their destruction when the weather is unfavorable. You do not get the value of the three holes ⅝ inch in diameter in the front board, as described in my previous article, as you appear to ignore it in your description. The winter entrance to my hive is 1¼ in. deep; the board put in front of the hive has an ordinary entrance cut on the lower side. In addition it has three holes bored in such a way that they come just under the front board of the hive. The object of this is still to have an entrance to the hive should the lower entrance become clogged with dead bees. Again, there should be an entrance to the hive immediately above the bottom-board. The object of this is so the bees can carry out dead bees without taking them over any obstruction.

6. Most decidedly one inch. This enables dead bees to fall away from the combs, and also gives better ventilation.

7. I have no reason to believe that the lower entrance, ⅜ x 8 inch, is not ample for any colony in winter providing the top of the hive is not hermetically sealed, and the top packing is not so compact that no moisture nor air can pass upward. With a front packing under, at the sides and over the entrance, and with no strong current of wind, such an entrance is about right; yet I do not want to be arbitrary in the matter. To any one who wants a wide-open entrance with zero weather let me suggest that he try it in his own home first.

8. I cannot tell. Five frames well covered with young bees should stand an entrance four inches wide.

9. I cannot tell. It would depend upon how badly I wanted the bees. Winters vary. If I had a large number of colonies, and did not want to run any risk, I would not attempt to winter a colony that could not well cover four combs this far north. Such a colony with a good queen and plenty of good stores could give a good account of itself the next season.

10. The cold air, I believe, always rushes into the warm air because the hot air is expanded air, rarefied atmosphere. What you suggest is all right, providing you are there to give needed attention when changes come.

11. Your supposition is correct as to my cover over frames. Forest leaves are much better for packing over the bees; but the sacking with the leaves added is excellent. Newspapers or other paper in sheets over the cloth on top of the frames or queen-excluder is very good. A chaff division-board or a bag with some kind of filling such as wool, carpet, or leaves, is the best way to fill the vacant space in a hive, this space resulting from the contraction of the brood-chamber.

12. No, I do not crowd the leaves used for packing. Let there be some looseness left; press the packing down moderately.

13. There are very few colonies not wintered on the full number of combs—twelve. In the first place, my bees are run on the non-swarming plan, and are much more likely to be full colonies. Next, in out-apiaries I do not always have a place secure from robbers; and, lastly, when bees are packed by Sept. 1 or 15 there is not as great necessity of contracting the brood-chamber, although it is always desirable in order to secure the best results.

You state you are using one-inch material

for your packing-cases. One inch split and dressed on one side is better. It should be painted a dark-red barn color. This thin wood is more readily penetrated by the sun's heat, and helps to dry out the packing. Thicker packing on sides does not allow the sun to penetrate; and too much on top is positively injurious, because it retards the upward passage of the moisture the bees give off when expelling the water found in the honey they consume.

Brantford, Canada.

## THE CHINCAPIN AS A HONEY-PLANT

### While the Honey cannot be Marketed it is of Great Value for Brood-rearing, Stores, and Comb-building

BY J. J. WILDER

Through the great sand-ridge section of central Florida this honey-plant grows in all its glory, not as trees in size, as it grows elsewhere in the United States, but as a small shrub 12 or 16 inches high. Fig. 1 shows the young tender sprout as it shoots up each spring from the crown root just under the surface of the earth, and from which perhaps 50 or more similar shoots will come.

This section of Florida consists mostly of wild land which has been timbered. Small oaks have come up thinly, and the surface is almost covered with this plant. Fig.2 shows a portion of the forest, and the plant in bloom, giving an idea of how dense it is.

Look again at Fig. 1, and note that the blossoms are on stems 4 and 5 inches long, six to ten to the sprout. These stems are solid rods of shucky bloom with the nectar in full view, and prominent. The blossoms begin opening about the body of the sprout, and gradually extend to the end, the entire period of the bloom occupying four or five weeks.

This section of the country is burned over each winter by forest fires, and all sprouts are killed. This burning is usually done the latter part of winter, and soon afterward the new tender sprouts will be seen peeping up. Where it is burned over first it will come up first; and where it is last burned it will come up last. This greatly prolongs the flow, so that it usually lasts for

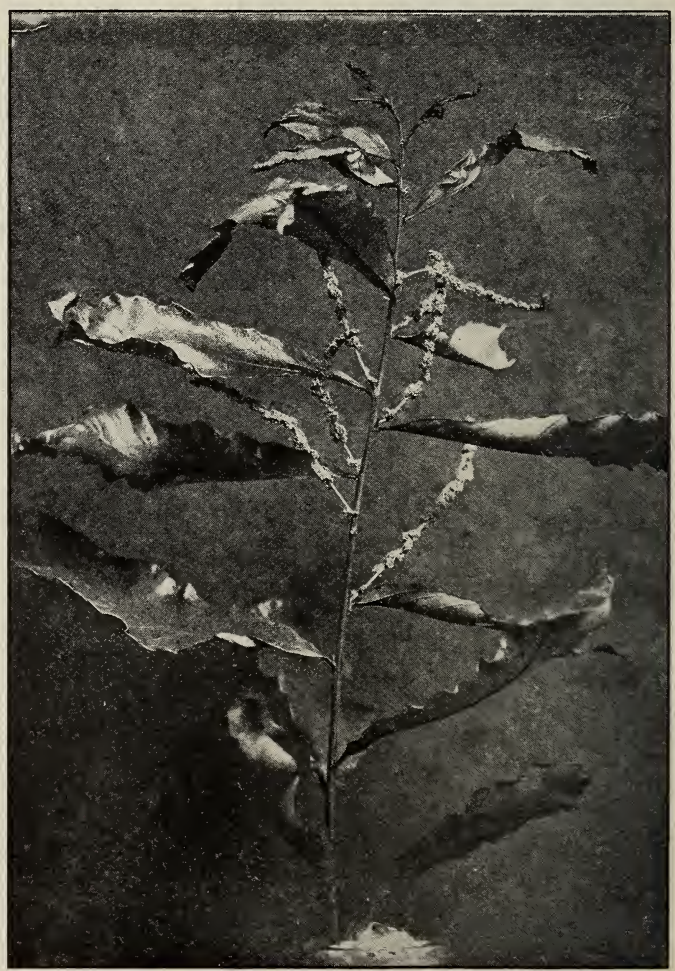


FIG. 1.—A stalk of chincapin, showing the leaves and blossoms.

60 or 70 days, beginning about April 1, ending from June 1 to the 10th.

The yield is usually good, but what about the honey? It is unwholesome in the extreme, or totally unfit for food. It is sweet a little, bitter a little, strong a little—in fact, it seems to have a little of every kind of unpleasant taste. There is not much of any one; but the combination is bad. Then it has also an unpleasant odor—so much so that a lover of good honey would hardly get a "slug" of it to his mouth, much less take any. During the first part of this flow the apiarist handling the bees will very often become very sick from inhaling the odor as he opens the hives, for the fresh, sickening odor floats into the air from the comb where it is being evaporated. A great deal of the offensive smell leaves it as it becomes thicker. When finally ripened it is heavy and dark.

FIG. 2.—The chincapin growing luxuriantly in burnt-over timber land in Florida.

Some reader may wonder why I describe such a honey-plant. Well, because it is a great honey-plant after all, even if the honey has no market value, for it takes the place of the better article in the hive; and for bee-production it has no equal. It might be asked, "Would bees take to it where it was used for feeding purposes?" I should say they do. If there is a honey-dearth when it is in the hives, it makes frame manipulation almost impossible. I have over 30 apiaries in this section, and all the surplus from this source is used for feed wherever feeding is to be done. For this purpose we have never used any thing quite so good. It is barreled up in the extracted form, and shipped to different parts of our field, and at the proper time used as feed for making increase or for stores where colonies are short. Hundreds of barrels of it have been used in this way; and by feeding it we are able to take from the bees the better grades of honey much closer than we otherwise could. This makes it a great factor in our business; but is this all?

Again, nearly all our combs in sections and in frames are built during this flow; and as soon as it is over, the honey is extracted from the storing apartments, and the comb in sections and frames is set back on the hives; and when the flow of good honey comes on, the bees have nothing to do but fill the ready-built comb. The next flow usually laps into the chincapin flow just a little; but it is a weak one, coming on gradually.

Cordele, Ga.

## THE SNOWBERRY IN IOWA

BY DR. A. F. BONNEY

With this I send you photo of the snowberry (*Symphoricarpos occidentalis*).

*Description.*—A shrub 3-5 feet high; leaves oval or ovate, entire or undulate(?), glabrous above and below (under a 4-diameter lens); two and three bunches of flowers which are in short axillary clusters; pink in color; corolla bell-shaped; fruit a purple-black berry.

*Distribution.*—Rocky woods and wooded pastures; but I do not know where it is found other than in Crawford County,

Iowa, although, like its cousin, *S. orbiculatus*, it is probably well known all over the State, particularly in the southern part.

While this plant has but three bunches of flowers the *O. orbiculatus* may have five or more, and the berry is redder (coralberry).

*S. occidentalis* is a good honey-plant, but the bees will not leave white clover for it. When clover fails, as it did in 1912, '11, and '10, the bees will store from it; and while its season is short at such times it yields well in drouthy weather. It is called buckbush and buckbrush here. The honey is white and of fine flavor, hardly to be distinguished from white clover.

I wrote to our State Botanist for a technical description, which I enclose:

Buck Grove, Iowa.

Snowberry (*Symphoricarpos racemosus* Michx.). An upright shrub with oval short-petioled leaves, downy underneath, and entire on the young branches; wavy-toothed or lobed; flowers in a loose and somewhat leafy interrupted spike at the end of the branches; flowers white, tinged with rose color, corolla bearded on the inside; berries large, white; ripen in the autumn. This species is widely distributed from New England to Pennsylvania, to Minnesota. The species found in Iowa is *Symphoricarpos occidentalis*. It sometimes goes under the name of wolfberry. It is a more robust plant. The flowers occur in loose terminal and axillary spikes. The corolla is very hairy within, but the same color. In Wisconsin and Minnesota the plant occurs in rocky ground. In western Iowa, where it is most abundant, it occurs on the loess soil.

There is a third species which is common in southern Iowa and southwest, called the Indian currant, or coralberry (*Symphoricarpos vulgaris*), or sometimes buckbush. It blooms for a long time, and probably yields considerable honey.

The snowberry, also called "buckbush" and "buckbrush."

Ames, Iowa. L. H. PAMMEL.

## SHALL I BUILD MY OWN HIVES?

BY R. J. W.

I have read very little in GLEANINGS about building hives and apparatus at home; but I am sure it is not because our editors are interested in selling them to us. I know of no journal that prints less free advertising than GLEANINGS. In our agricultural papers, poultry journals, and home papers, we find many contributions gotten up in good form, and treated in an able manner; but we find in the end that if the prices and postoffice address are not tacked on they may be found in a conspicuous place in the next issue. As I wanted to increase my apiary by about twenty stands I picked up a catalog and began to figure. I came to the conclusion that if the factories are getting rich it is because factory methods beat hand methods by just about as much as their profits and freight amount to. We often see the statement made that factory goods are more accurate than home-made supplies. My hives are just as accurate and true as any factory hives. I use a Barnes circular saw, and have plenty of wood-working tools, and am satisfied with the quality of my hives, and I know any one else would be; but what did I save by making them up at home? I can figure my work at $1.00 a day, and come out just about even. Will I do it again? Oh, yes! because I am a farmer, and can work for $1.00 a day in very bad weather in the winter, and because I enjoy the work.

I could have made these hives in half the time, and out of lumber that cost half as much. Then would I have saved half? Not much. I would have lost it all, for my apparatus would have been a misfit, and would have been worse than useless.

If the factories are charging you exorbitant prices, getting rich fast, and making you poor, get out of your business, and get into theirs, and get rich too. Factories can raise the prices of goods just so high; but when they reach the limit you can manufacture your goods yourself; or if you are unable to do it, hire some one who can to do it for you.

# A METHOD FOR RAPIDLY INSERTING FOUNDATION IN WIRED FRAMES

BY F. R. GORTON

Having occasion to fill several hundred wired brood-frames with full sheets of foundation I found the device herewith illustrated of the most satisfactory service.

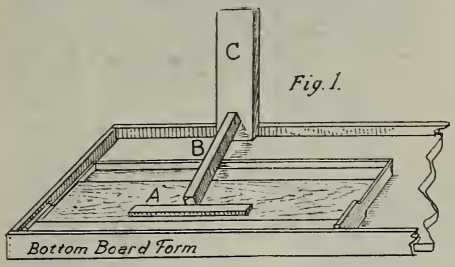


Fig. 1.

A ¾-inch board 7¾ x 16¾ is nailed to a bottom-board for holding the frame in place so that the top-bar rests firmly against one side of a regular hive bottom-board as shown in Fig. 1. A thin piece 4 x 16½ inches, shown at A, fits loosely inside the frame for forcing the wedge into place.

In using the device, the frame is placed upright, resting on its top-bar, and the sheet of foundation is set into its groove behind the wires. The wedge is now inserted loosely, and the frame laid upon the board in the position shown in Fig. 1. By means of the board A, the lever C, and the short piece B, the wedge is forced into its groove with one pull on the lever.

If the frame is wired so that the free ends of the wire are at the right, all that is necessary to imbed the wires in the foundation is to hold the end-bars down and press the electric key G (Fig. 2) for about five seconds, and the imbedding is finished. The imbedding feature is made and operated as follows:

Two strips of tin about 1 x 4 inches are bent squarely at a point ¾ inch from one end, and nailed to the ¾-in. board as shown at E and F. These tins are placed so as just to touch the upper and lower wires when the end-bars are pressed down, thus stretching the wires tightly across the foundation. On pressing the key at G the electric current traverses the wires, thus heating them and melting them into the foundation, all four wires at once.

The electric connections are made with a 110-volt lighting circuit. H is an ordinary screw plug fitted with a double cord J, one free end being connected at E and the other with the key G. The key is a strip of spring brass attached at one end by a screw to the bottom-board, and bent down at the other. Its purpose is to break the electric circuit when the wires become sufficiently heated to melt them into the foundation. Ordinarily the bend in the spring holds it away from the tin F; but a slight pressure makes the contact. The brass may be wound with tape to keep the finger from coming in contact with any part of the circuit; but it is practically impossible to suffer a shock of any consequence. When the plug is screwed in place of one of the fuses through which the current has to pass to a set of lamps in the house as shown, the same current must pass through the wires of the brood-frame. If six or eight lamps are turned on, the current will be sufficient to heat the wires in about five seconds. Care must be taken not to get the wires so hot that they melt themselves entirely through the foundation. A few minutes' practice enables one to do fine work.

In case the lamps cannot be used in this manner as the controlling resistance, 150 feet of the wire used in the frames can readily be arranged in zigzag form on nails as shown in Fig. 3. This will reduce the current to about the strength obtained by turning on eight sixteen-candle-power lamps in the method shown in Fig. 2. After a

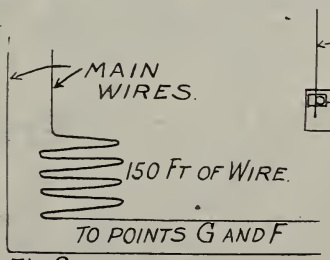


Fig. 3.

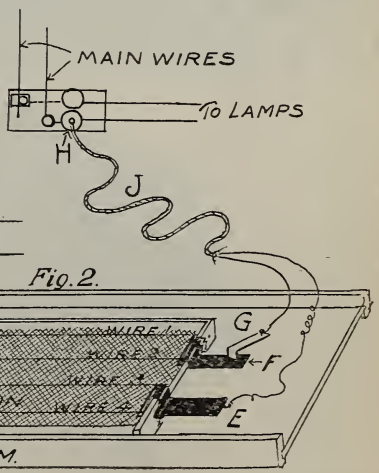


Fig. 2.

Fifth annual field day of the Connecticut Beekeepers' Association at the home of T. L. Pratt, Wethersfield, Ct., July 18. See report by L. Wayne Adams, p. 757, Oct. 1.

little experience the sheets of foundation can be inserted, wedged, and imbedded at the rate of one per minute.

Ypsilanti, Mich.

[Where one has access to an electric-lighting current, the electrical method of imbedding—heating all four wires at a time—is ideal. If resistance wire has to be used we recommend the use of a larger size of wire than that usually used in frames, and a much larger amount; otherwise the wire used for resistance will become just as hot as the wire that is being imbedded. If one has not had some experience in matters of this kind an electrician should arrange the apparatus.—ED.]

## MOTORCYCLE RUNS A POWER SAW

BY OSCAR RITLAND

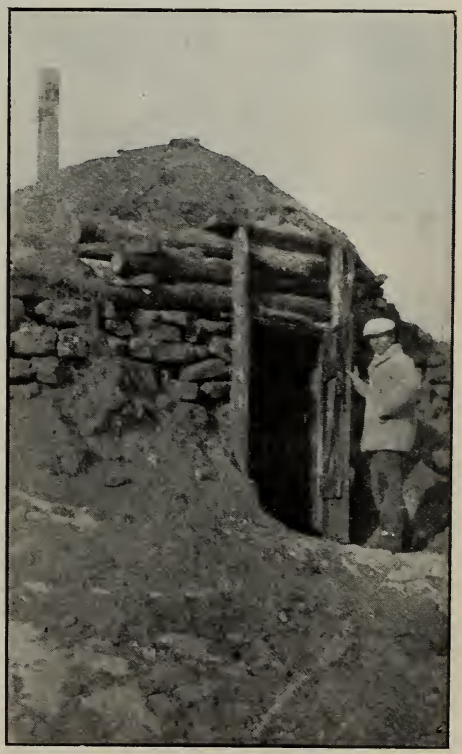
I am sending a picture of my workshop, and also one of my bee-cellar. As shown I run my saw with the engine of my motorcycle. I removed the fender from the back wheel and put the belt on the outside of the tire, and then around a mower wheel and over the mandrel. The material cost about $6.00 besides my work and the wood material. I have a rip saw and cut-off saw that are interchangeable, and I can cut any thing up to a 1¾-inch oak plank. The 5-h.p. engine furnishes all the power I can possibly use.

I make all my hives, covers, bottoms, etc., but I buy the frames, as I cannot make them as smoothly nor as cheaply as they can be made in a special machine. I would never advise any one to make his own supplies if he does not have a power saw.

THE BEE CELLAR.

This is built in a sandy side hill sloping southeast. It is 10 x 10 x 9 on the inside with an earth wall 4 ft. thick on the front and 2 ft. of earth on the roof. There is a sub-earth ventilator and an ante-room 4 ft. wide. I placed 41 colonies in this repository Nov. 17, 18, 1913, and they were always perfectly quiet. Although the temperature varies many degres outside, it stays the same inside. I think this cellar will winter 75 colonies, or 100 if ventilation and temperature are watched closely.

Elroy, Wis.



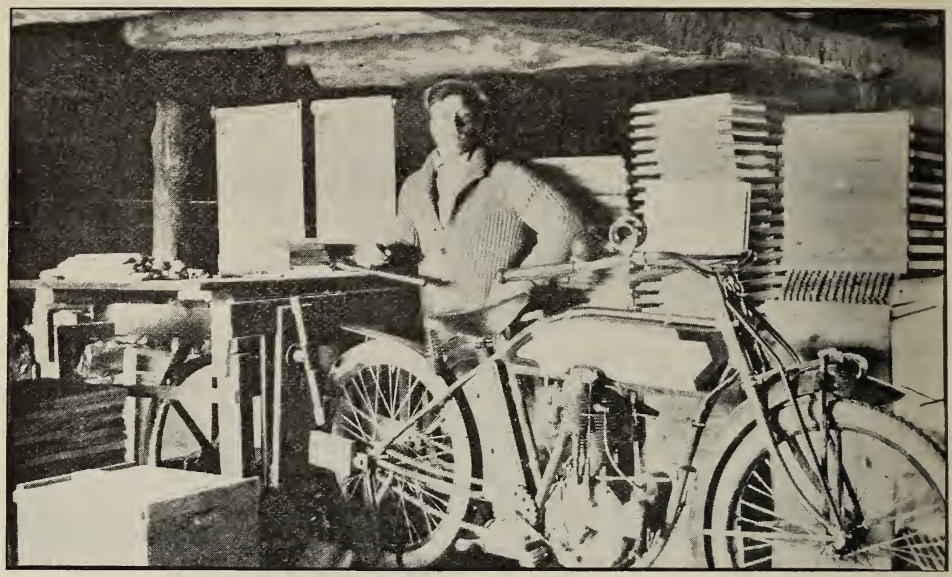
Ritland's side-hill bee-cellar.

## UTILIZING THE HONEY IN CAPPINGS FOR FEEDING

BY R. POWELL

My way of handling cappings while extracting may help some one, so I will describe it.

At the close of the day's extracting I take the cappings and crumble them until they are like dough, and let them drain until morning. Then there is but little honey left in them. One who has not tried working them up will be surprised at the difference in drainage (a mason's trowel is a good tool to do it with). After they are thoroughly drained I turn them into an eighty-gallon tank until it is two-thirds full (pressed down). Then I put in ten gallons of water, place the tank over a fire, and bring to a boil. After cooling, the wax will be floating on top. I draw off the sweetened water and strain it. I next give it a thorough boiling; and while it is boiling hot I pour it into five-gallon screw-top cans.

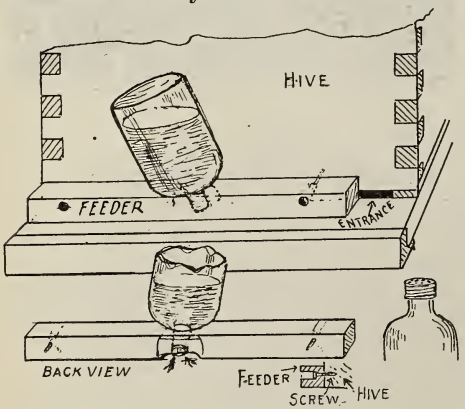


Running a power saw with a motor cycle.

I put a rubber packing into the cap of the can instead of the paper packing, and turn the cap down while it is boiling hot, using a wrench. If the work is thoroughly done the contents will draw in when cold, and will keep any length of time.

I label it when put up, by whom, and the percent of water (this I ascertain by the increase measurement.) The addition to the water measurement is honey.

This is safe to feed, as it has been thoroughly sterilized by boiling. When first opened it will suck air, and one can readily tell that it has not been tampered with. I always keep this feed in the apiary so that I can feed it at any time. This is safer than




drawing from colonies that have a surplus, and I have found that it pays to be on the safe side.

The feeder which I use, an illustration of which is given in connection with this article, may be of interest to beekeepers who have never tried this plan of feeding. The block of wood is screwed up against the entrance on one side, closing that side; but it leaves enough space for entrance at the end of the feeder.

In this block I insert a bottle full of feed (I use Armor's empty grape-juice bottles). I take out the cork packing of the tin stopper of the bottle, and punch a hole in the tin cap with a three-penny nail; turn the bottle upside down with the cork end in the hole, and the bees do the rest.

The feed can be put up in the bottles instead of the five-gallon cans by using corks. In this way they will be very convenient. This feeder is excellently adapted to queen-rearing, as one can regulate the flow by the size and number of holes. All bottles made by this firm that have metal stoppers have the same size of neck.

### TREATMENT OF AMERICAN FOUL BROOD.

I keep an eighty-gallon galvanized iron tank on hand; and as soon as I discover a case of American foul brood I get this can and wet and double a blanket. I put five gallons of water in the tank, place the whole on a wheelbarrow, and wheel up to the colony affected.

Then I have an assistant open the hive. While he smokes the bees briskly I pry all the frames loose in the upper story. Then the assistant takes the smoker in one hand, and with the other hand he takes hold of

the wet blanket, which (doubled) is placed as a cover to the tank on the wheelbarrow. I shake the bees off the combs (no brushing), and throw them into the tank. Because of the amount of smoke and the shortness of the operation no robbers will bother. We then lift the tank over a brisk fire, placing some close-fitting boards on top of the wet blanket. In a few minutes the steam will rise so densely as to cook thoroughly every thing in the tank.

If there is much honey I can it and feed it. As a rule this will not pay. If honey is coming in I give the bees foundation; if not, I give them an old comb for 24 hours, then take it away and melt it or burn it, and give the bees combs and feed them.

This tank will hold from forty to fifty combs, so about four single-story or two-story hives can be treated.

If bee inspectors were to carry a can like the above while inspecting, and treat the bees by this plan, then and there, there would be no American foul brood very long. Two men could easily treat fifty colonies a day.

Riverside, Cal.

## BEES ON A SMALL CITY LOT

BY WALTER M. JOHNSON

W. M. JOHNSON.

Some people have the idea that bees will not do well on a city lot. I think this is a mistake. In the spring of 1909 I had a severe case of bee fever. I wanted some bees of my own, as I thought there was a market for all the honey I could get. Some told me that bees would never do well unless they were on a big farm where they would have woods from which to get honey-dew! I thought I would see for myself whether or not bees could be kept on a small space of ground.

I planted some Spanish buckwheat on all the ground I had, and my seven colonies of bees did extremely well. I think that success depends on the care and attention the bees have. Beekeeping is a very profitable pastime for city fellows. I haven't as many colonies of bees as I should have if I had the time; but I am going to get more and go into beekeeping right before long. I am going to change from the black bee to the Italian, for they are the best honey-producers for me.

After I had kept bees for a while I experienced a good many troubles which I suppose many beginners have. I did not know how to avoid them, so I began to search for a magazine for beekeepers. When I found GLEANINGS I knew it was a good magazine for me. I think every beekeeper should have a good bee magazine, just as farmers and other professional men have their magazines.

Jenison, Ala.

## HOW A BOY'S INTEREST WAS AROUSED

BY R. S. SATTERFIELD

It must have been in the springtime, years ago, when my father and older brother ate an early dinner, got in a farm wagon, and drove away. At what hour they returned I do not know, but I presume it was in the latter part of the night. Out in one corner of the yard next morning were six or eight "bee-gums," boxes about a foot square and two feet high. I learned that the bees belonged to Mr. Phillips, and that father had agreed to keep them and to give Mr. Phillips half the honey and half the increase; but just when I learned this I do not know. This contract remained in effect for ten or twelve years.

The next thing I remember about the bees after that first morning is a swarm coming out. I remember that father used an old cow-bell and mother a small dinner-bell. Around and around they went, through the garden and out into the orchard, where the bees settled on the body of the old June apple-tree. Father surely did look funny with one of mother's bonnets on, tied close up under his chin, the skirt of the bonnet under his coat, and his coat buttoned all the way from top to bottom and the collar turned up. It was funny, too, to see him go up and brush a few bees off and then run and crouch down among the currant bushes. At last mother took hold and succeeded in hiving the bees. It turned out that mother had to manage the bees, father assisting when they settled where mother could not

get at them. The surplus honey was secured by placing a hive over burning sulphur and killing the bees. For years the increase of the season would be killed off in this way, leaving the usual number of six or eight colonies to start in with the next spring.

I became mother's assistant. By the time I was twelve I was making the bee-gums, and a little later I was in the woods at the proper season, when I could get off from work hunting bee-trees. Father and the other boys always went to town, four miles away, on Saturday afternoons. Not so with me. I spent this leisure time fishing, squirrel-hunting, bee-hunting, or in the shop where the tools consisted of a saw, plane, square, hammer, brace, bits, and a chisel or two.

One Saturday night father said to me, "I wish you had been in town this afternoon. A man took a bee-gum and knocked it to pieces, put the combs in small frames, and tacked strips across to hold it in; put these frames in a box, and smoked the bees into it, and set them over in the corner of the hotel yard. Nobody got stung, although a big crowd was there. Then he told a lot about bees."

Of course I did not rest until I saw this man and learned what he could do with bees. It resulted in father's buying one of his hives and a smoker, and a permit to make and use the hives in the county where we lived. (We afterward found that the hive was not patented, and anybody who chose made and used them.) The man who sold these hives gave his name as Pickerel. He was a red-headed, red-faced man, rather witty, and very tactful. I remember one boast he made was that he had been in every State in the Union and in Canada; that he had never voted, and had never paid any tax. It was wonderful how he stirred that region. People went wild over bees. With the majority this interest was short-lived.

At this time father bought out Mr. Phillips and turned the bees over to me. My interest grew, and so did my knowledge, and my stock of bees and the profits too. At the end of eight or ten years, when I went away to college, there were between seventy and eighty colonies in the yard. At the end of three years there was not a colony living. Father said the worms and an unusually hard winter killed them.

Pauls Valley, Okla., Jan. 30, 1914.

## THE TEMPERATURE OF THE BEE COLONY

Condensed by H. R. Calvert from U. S. Dept. of Agriculture Bulletin 96, covering experiments conducted by Burton N. Gates, Ph.D., formerly Apicultural Assistant, Bureau of Entomology.

The paper from which this summary is made was written to fill a need among beekeepers for more accurate knowledge of the temperatures and changes in weight of colonies of bees, particularly during the winter. Such knowledge of the changes in temperature and weights is helpful in a study of methods for successfully coping with one of the greatest difficulties which the beekeeper has to meet—the wintering problem.

The scope of the work accomplished is indicated by the following figures:

Period of experimentation, Oct. 22, 1907, to Sept. 26, 1908.

Number of observations, 2576+.

Number of separate readings, 20,000+.

The apparatus included a finely adjusted, specially constructed platform scales which registered with a sensitivity of 10 grams and a maximum of 200 kilograms. Seven mercury thermometers of the incubator type which registered to a fifth of a degree, and were graduated to the Centigrade scale; a ten-frame hive of five stories, including all its appliances—feeder, apparatus to be used in emergencies which was stored in the lower story, two colonies of Caucasian bees, and a check colony in an observation hive placed near the colony on the scales.

Four thermometers were inserted at regular intervals between the central combs, a fifth placed at the rear of the hive between the third and fourth combs from the side, this one to represent the temperature of the margin of the cluster; a sixth, inserted beneath the frames through a collar, and the seventh suspended close to the hive in such a way as to register the temperature of the air which surrounded the apparatus.

The apparatus was installed in a shed on a third-story back piazza in southwest Washington, D. C. In July, 1908, it was necessary to transport the experiment to College Park, Md. This, however, was found to have in no way affected the results.

Since none of the instruments recorded automatically, readings of both weights and temperatures were taken at least every hour throughout the working day; and, while the hive was being manipulated, every half-hour or quarter-hour. On the average of about once in three weeks, by means of assistance, it was possible to take consecutive readings for a period of two or three days. Temper-

atures were read to fifths of a degree, and weighings made to 10 g. Every alteration or manipulation of the colony was recorded. Hourly changes in the weather and activity of the bees were also noted.

It was not possible from the readings to detect any relation or rhythm in the consumption of stores to changes in temperature due to metabolism. Nevertheless, several significant facts concerning the consumption of winter stores were discovered.

The rate of consumption of stores exhibits a relatively constant decrease from month to month. Consumption, however, slackened as the season progressed.

Humidity was a factor which noticeably influenced daily results. Although condensation tended to prevent a drop, or even to raise daily readings, the increase in weight could neither be permanent nor affect the total results; as whatever water condensed during bad weather would evaporate during the following days of fair weather. Consequently the records of a single day are less significant than the averages of a month or of the season.

While the average daily consumption for November was 53.2 g., the average for February was but 30 g. daily. The average for the entire winter was 43.5 g. daily. While these are the figures for average consumption, no such degree of constancy existed between daily readings. The fact is, a daily variation in weight all the way from a loss of 130 g. in some cases, to an increase of 40 g. in others, actually existed.

Some interesting observations were made upon the cluster which are significant. During the winter the bees are relatively quiet; the cluster expands, and the bees fly only on the warmest days. The heat maintained in the cluster has a general relation to the prevailing temperature of the air; but it was observed that the temperature at the center of the cluster increased as the outside temperature decreased, due to the crowding together of the bees in cold weather. The curves made from the readings show that the *maximum* temperature within the cluster occurs practically simultaneously with the *minimum* outside, and *vice versa,* except in March, when, with the commencement of egg-laying, the temperature of the brood cluster became more and more constant. At all times the cluster was very sensitive to changes in the external air, responding readily and readjusting itself quickly so as to keep at a temperature ranging from 62.6 F., the lowest, up to 91.76 F., the highest. Contrary to what might be expected, the cluster thermometers reached their maxima and minima later than the outside thermometer; but seldom, and only in severe weather, when changes were rapid and considerable. It might be inferred that the relation of the maxima and minima of the temperature of the center of the cluster to the outside temperature might be due to a "lag" or delay. For instance, corresponding to the minimum of the outside temperature on the 4th of February, the minimum of the cluster temperature came nine hours later. If this was due to delay or "lag," maxima and minima are in some cases delayed twenty-four hours or more. But this cannot be, because there are many minor variations which appear on the curves, and which are synchronous.

Thorough comparison of the charts failed to provide suitable material for conclusions as to the cause of the "lag," as the experimental colony furnished no data for a consideration of humidity and condensation; and the factors of convection, radiation, and conduction cannot be conceived as slow enough to retard the cluster temperature from nine to twenty-four hours, nor would it account for its minor synchronous variation.

It was found that opening, manipulating, or in any way disturbing the hive, would cause a corresponding temporary rise in temperature.

In regard to the behavior of the bees in the cluster, we will quote from the author concerning the apparent interchange of bees from the inside to the outside of the cluster.

> As the writer watched the cluster, the head of a bee would gradually appear from below the bees forming the shell of the cluster. Finally this bee emerged and took her place with the others on the outside. Similarly bees were frequently seen to disappear into the mass. The behavior was in no way general, but apparently was going on constantly and gradually. The phenomenon was repeatedly observed under all manner of conditions and at different times of day and night. By carefully arranging the covers, so that it was unnecessary to remove them, and thus cause a jar, it was proven that this behavior is normal, and not the result of a disturbance of the bees. It must be concluded, therefore, that in this way the same bees may not be exposed to the outside cold for a long period. So long as they are able to keep up their own body temperature they remain outside; but when chilled they pass into the interior.

One fact which might be of interest to beekeepers is that the thermometer situated below the bottom of the frames and cluster registered almost identically with the outside thermometer at all times, both on the coldest and warmest days, which showed that throughout the season the temperature below the frames was practically the same as that of the outside air.

The transition within the hive from winter to summer conditions was accomplished in

a surprisingly short time. Accompanying incubation and brood-rearing, the temperature was gradually raised and became equalized through the hive; and when once well established it was maintained during the summer. Although the transition was abrupt, it would be expected to vary with the colony, and even be prolonged in bad weather.

## NO HONEY IN MINNESOTA

BY J. ALF. HOLMBERG,
*State Inspector of Apiaries*

The season of 1914 in Minnesota may be said to be almost a failure. This is due to the fact that the spring was wet and cold, and then the hot weather came on so suddenly the bees had very little chance to get any surplus honey. In my visits through the State this summer I saw any amount of flowers, but the bees would not work on them at all. In only one place have I sampled basswood honey, and this is very seldom the case in this State. Feeding will be necessary in many places.

I expect to see a real bumper honey crop next season, as all conditions seem favorable; and if the spring opens up right, I don't see why honey should not be plentiful.

Foul brood, which has been very threatening in this territory for a good many years, is now well under hand, and I see no reason why it may not be overcome completely if the beekeepers will only co-operate. I do not blame the beekeeper for being the careless one; but it is the man who keeps bees and is not a beekeeper who really starts the trouble. I have visited many places where I have had to plead with the man before he would allow me to examine his bees to see whether they were in perfect condition so that his neighbor, making his living on bees, might rest assured his bees would not become infected through the carelessness of his neighbor.

St. Paul, Minn.

## NOTES FROM GERMANY

### How Many Trips to the Field does a Bee Make in a Day? How Long Does it Take to Fetch One Load? How Long Does a Bee Remain in the Hive Between Trips?

BY J. A. HEBERLE, B.S.

An interesting article by Walter Lunden is making the rounds of the German bee-journals. In this he describes an experiment designed to answer the above questions. The problem is complicated, and difficult to solve. The answers will be as varied as the conditions. Especially important is the distance of the source of nectar and the abundance of it in the flower visited.

In the afternoon of July 14, 1913, Mr. Lunden caught bees from a good colony that was conveniently located for observation, and marked the bees, six in all, on the thorax—white, yellow, orange, green, blue, and red. Gold, silver, and copper bronze were not used the first day. He found that marked bees behaved no differently from the others.

On the 15th of July the observation began at 6 A. M. The weather was fine, the honey-flow from clover.

A colony on the scales showed at 10 A. M. a loss of 900 grams, which he attributed to the bees flying out to the field for nectar and pollen. In his calculation he takes the weight of one bee at one-ninth of a gram, and concludes that about 8000 bees had gone out foraging. Between 10 and 11 A. M. the weight remained about the same. The bees flying out were balanced by the incoming nectar. At 2 P. M. the 900 grams, the weight of the field bees, was equaled by the stored nectar. At 6 P. M. the increase in weight was 2300 grams; 700 grams were lost by morning through evaporation, making a net gain of 1700 grams—nearly 4 lbs. A thunderstorm between 4 and 5 P. M. cut off the flow. The best day had been 2900 grams net; 2100 grams, or 4 2-3 lbs., the following morning.

Mr. Lunden stayed at his post of observation till 7 P. M., making it 13 hours, without interruption. His meals were brought to him. A few times marked bees were seen going out or coming in, and were marked with an interrogation-point. Green had been oftener overlooked, because this color is not so easy to notice as some of the

others used in this experiment. In the afternoon more of the colored bees were overlooked than in the forenoon because the observer naturally became somewhat tired.

He summarizes his observations as follows: A field-bee makes about ten trips a day. A trip takes from 30 minutes to two hours—on an average about one hour.

The field-bee remains but a short time in the hive—from five to ten minutes.

Mr. Lunden thinks that the fanning at the entrance is not only for ventilation but also a training for flying.

Bees that made regular trips to the field did not fan—only those that stayed at home, and in the afternoon made their first trip. The next day these fanning bees made trips to the field in the morning.

The following day other members of his family continued the observation with similar results.

RED CLOVER WITH A SHORT COROLLA.

Beekeepers of the Old and the New World have often expressed the wish to have bees that could gather nectar from the common red clover. Once the hopes of the beekeepers were raised several degrees by the prospect of introducing and domesticating the large Indian bee, *Apis dorsata.* It was supposed that, from its size, it would be able to gather nectar from red clover and from other plants that are not visited by our bees. A beekeeper with two apiaries, one of the *Apis dorsata,* and one of the *Apis mellifica* —would be almost certain to make a crop from at least one of the apiaries. For a short time the long-tongued red-clover queens opened visions of sweet treasure to the believing beekeepers.

Now some, sanguine of success, try to breed bees larger in size than our common ones. Besides being stronger and of more robust health they would likely have their tongues a little longer just to reach the nectar in the red clover. Such endeavors probably arouse the interest, lead to thinking, experimenting, studying, and may bring something different from the object sought that will benefit the craft.

It is believed to be easier to raise a variety of red clover with a short corolla than bees with longer tongues. According to the *Bienenvater,* Mr. V. Wuest succeeded in crossing red clover, *Trifolium pratense,* with *Trif. pannanicum.* The resulting crossing has a corolla of only 5.87 to 6.14 millimeters, while the corolla of the common red clover measures 8.26 to 9.54 millimeters. Should that be so, and if the new crossing grows as profusely as the common red clover, it would be a very valuable addition to our bee flora.

THE GREAT GERMAN BEEKEEPERS' UNION.

After various fruitless attempts the leaders of the many associations succeeded on July 5 in Frankfurt to amalgamate all into one great federation, with nearly 160,000 members. Its name is "Vereinigung Deutscher Imkerverbande," the abbreviation being V. D. I. Harmony prevailing, this organization can do much to further the interests of the beekeeping fraternity. Reasonable demands by "the powers that be" will be carefully considered.

Kempten, Bavaria, Germany.

## BEES AND HONEY IN HISTORY

BY T. G. ADAMSON

Biblical history starts about 5918 years ago. May we assume that the honeybee was in the garden of Eden? Any way, we read of honey first 3621 years ago, when Israel sent Pharaoh a "little honey." Is not this the first historical record of export? We may be sure it was much valued, for sugar was unknown in these days; therefore honey would be the only sweetmeat known. How all Pharaoh's womenkind would come around for a lick!

From Genesis to Revelation we read over and over of bees, honey, and honeycomb, covering a period of over 3700 years. What changes in bees in these years and methods of keeping and breeding! What disasters and times of scarcity of honey! The word of God is compared to honey for its sweetness, and frequently honey is figuratively mentioned in the Bible. Honey and bees are referred to in the Bible over a score of times.

Palestine was well adapted for beekeeping by reason of its climate and great variety and plenty of aromatic flowers. Perhaps they had alfalfa or lucerne as well. There were limestone rocks in which the wild bees lived; also hollow trees and dried carcases. The hives belonging to the Jews were made of clay for coolness. A favorite name for women was Deborah, meaning a *bee*—a good worker.

The Pharaohs had bees embroidered on their robes as emblems of royalty, and Napoleon did likewise. We may assume that his visit to Egypt was productive of much

knowledge to him. Napoleon had the queen-bee profusely embroiderd on his mantle of state.

The Romans had laws regulating beekeeping, some of which dealt with swarming and the ownership *en route*.

The ancient astronomers named a cluster of stars Præsepe, meaning the beehive.

The kings of England in the Middle Ages called the Jews their honeybees because the Jews contributed largely to the kings' revenue; but they did so under compulsion.

The great musicians of the past paid their homage to the bee; for did not Mendelssohn compose the "Bees' Wedding," said to be among his masterpieces?

We read in some old histories when man could leave records that he was found with sheep and carrying about sections of trees containing bees and honeycomb.

What would Pharaoh, Israel, Columbus, the Pilgrim fathers, Captain Cook, say if they were to see a modern apiary with a motor-driven extractor at work, and witness bees being moved 1500 miles by road, rail, steamer, and producing, perhaps, a score of tons of honey? May we assume that there has been more advance made in the honey industry in the last 100 years than in 3000 years previously?

Ngoora, Nemengha, N. S. W., May 20.

## HOW TO SELECT A BREEDING QUEEN FOR REQUEENING ONE'S OWN APIARY

BY FRANK BUTLER

The bees that get the honey are the ones the beekeeper wants, and are the only kind there is any profit in having. Good bees for honey-gathering make necessary good queens. In order to secure good queens, the apiary should be headed by one or more strictly first-class breeding-queens. It seems, therefore, that the breeding queen is quite as important as any thing connected with the apiary.

But how is a beekeeper to select one and know that she is the best? So far as I can see they can hardly be tested sufficiently for requeening the entire yard much before the third year. As an instance, from one colony which gave a large yield and did not swarm I reared a number of queens the next season. All proved of no practical value. Another colony which did equally well in storing honey and from which I reared a number of queens gave quite different results.

I found that a large percentage of the queens would duplicate the old one in storing honey. When a swarm issues from one of these colonies it will be found in most cases that there are very few cells started—rarely over two or three—and this, by the way, is one of the best indirect methods of judging a good queen. Here, then, is my idea of a good queen.

Of course, good wintering, gentleness, and, if run for comb honey, the bees' ability to store a good fat section well sealed to the wood, must be taken into consideration. If one has an apiary of 50 colonies or more, some one queen will match up to the above specifications. If selection in breeding is practiced, it will be found that, instead of a few colonies giving a large yield, one colony will do about as well as another.

Dover Plains, N. Y.

## NEW PRINCIPLES IN HIVE METHODS

BY J. E. HAND

No apology for suggesting an improvement in hive methods is necessary, in view of the fact that present-day hives are totally inadequate to the needs of modern methods. No improvement in hive methods has been made during the past quarter-century, simply because we have all along been contented with small hives—hives of insufficient capacity for the development of correct principles. First, and foremost among all the qualities that should recommend a hive, is capacity. With a properly proportioned hive of suitable capacity all things are possible, for hive troubles will vanish before it, and the most intricate problems are solved with the greatest economy. We may rest assured that no hive is too large so long as the extra capacity is fully utilized for the development of economical and valuable principles.

Secondly, beekeeping is virtually an all-the-year-round proposition; and a hive that furnishes protection for its colony in summer only is but half a hive at best, and the

lesser half; for with the wintering problem unsolved, no beekeeper in the North is complete master of his profession, regardless of his other qualifications. Outdoor wintering of bees is rapidly and surely coming into favor, and there is urgent need of a hive that will provide perfect protection for its colony 365 days in the year without extra equipment; for equipment is but another name for expense that lessens profits. To demonstrate chaff-hive conditions, in a new catalog issued by a Western firm, chaff hives are listed at $4.25 without any summer equipment except frames, which means that we must pay that price for indifferent winter protection, with an added expense of several dollars for summer equipment in order to make it an all-the-year-round hive.

Regardless of utility, the one item of "expense" is sufficient cause to relegate present-day chaff hives to the scrap-heap in favor of a hive that provides perfect protection for its colony 365 days in a year with practically no extra equipment more than is required for summer use. It is not the purpose of this article to criticise present-day methods without offering a remedy for existing conditions; and were I not in position to introduce a hive and system that meet the exigencies of modern methods this article would not have been written. I take pleasure in introducing the new hive because it is the embodiment of valuable principles. It is of 16-frame capacity in summer, and 8 in winter. It is named "the Convertible hive" because it is converted from a single-wall summer hive to a double-wall wintering hive, providing the most perfect protection in winter with practically no extra equipment. To comprehend fully its economical solution of the wintering problem it is necessary to understand that an ordinary 8-frame hive is 14 x 20 in., while the Convertible hive proper is 26 x 20 in. Thus, when the frames are removed from the latter hive it will take in an 8-frame hive-body crosswise, and leave approximately two inches of space for packing between the walls of the two hives; and the top story provides for abundance of packing on top without the chaff-tray nuisance.

To prepare the colony for wintering, place the 8 combs, including the bees, in a shell 12 inches wide inside and 12 inches deep, made of any old stuff ⅜ thick. Place the shell containing the combs and bees in the center of the hive crosswise; bridge the space between the outer and inner entrances; bridge the tops of frames for a winter passageway; cover with a quilt; put on the top story and pour in the packing, working it down into the spaces with the hand, and fill up the hive within an inch of the top of the upper story. This space is for the circulation of air under the cover, which keeps the packing dry. This method provides for 2½ inches of packing on each side, 2 inches at each end, and 7 inches on top, with a 3-inch space under the combs—a very desirable feature not found in any other wintering hive. It is superfluous to add that such perfect protection as this will winter bees safely in any location where they can be kept with profit; and the best thing about it is that no expensive or cumbersome equipment is necessary, for every hive is a perfect wintering repository.

Every year bees are shipped from the South by the carload to make up for winter losses that would not occur if right methods were practiced. So long, however, as the demand for bees continues, increase of stock should form an important part of the profits of beekeeping. The Convertible hive solves this problem, and explodes the theory that increase is secured at the expense of the honey crop. To demonstrate, it will be noticed that the Convertible hive has 16 frames in summer and 8 in winter, and less labor is required to place the extra 8 combs covered with bees, in a separate hive at the close of basswood harvest, than to brush off the bees later in the season when bees resent such a disturbance and store the combs, taking chances on damage by mice. Viewing it thus, aside from the extra queens, 100 per cent increase is a spontaneous production that costs nothing, merely utilizing brood, bees, and combs already on hand. All except the combs would otherwise be lost, for a 16-frame colony will be no stronger in bees April 1 than an 8-frame colony. The time to increase colonies without interfering with the honey crop is right at the close of the basswood and clover harvest when the hives are full of brood and boiling over with bees. With the right kind of hive and system the number of colonies can easily be trebled after July 20 without materially affecting the honey crop.

Queen-rearing is an important factor in forming increase, and a part of the program for which the Convertible hive is especially adapted. To demonstrate, the main entrance to the hive is in the side, with a small one in one end, which is always open, and is used in queen-rearing operations. When queens are needed a nucleus is formed by placing two or three combs of brood and bees next to the end of the hive having the entrances, closing them up with a close-fitting follower, covering them with a cloth, thoroughly separating them from the colony. Bees that have the habit of

using the end entrance will continue it, and we have a queen-rearing nucleus in working order.

It is thus that queens are reared without extra equipment, and without interfering with the legitimate occupation of honey production. When practicing the method of 100 per cent increase in connection with a full crop of honey, when no increase of stock is desired, it is advisable to make the division at the close of basswood bloom, and winter the two colonies separately, and in early spring place them both in one hive separated by a thin division-board into two distinct colonies, and utilize the empty hives and extra queens for the current season's increase. The extra queen and two combs of brood covered with bees are removed for this purpose at the beginning of the clover harvest, and held in reserve for the autumn division. The division-board is also removed at this time, and the two colonies united for the harvest, and again divided at its close. This method ensures a strong force of workers for the early harvest without any attention, and is a safeguard against queenlessness, and queens are always on hand for the annual division. Whether the increase is sold in the spring or united is optional. In either case, however, the returns will more than pay for the extra hives in one season. This system was formulated for the express purpose of operating in conjunction with the Convertible hive, and such results as herein demonstrated, while a spontaneous production with this hive and system are possible only with a hive of extra large capacity.

Birmingham, Ohio.

## BEEKEEPING IN THE SWAMPS OF NORTH CAROLINA

BY F. L. HUGGINS

Having kept bees for ten years I feel as if I knew just a few points in the business. Probably not over five per cent of the bees in this locality are kept in movable-frame hives, the old-fashioned "gum" still being in vogue. Having from the first used only the most improved methods my progress has been watched with interest by the natives; and this year, when I got 6000 lbs. of extracted honey from 50 colonies, they were dumbfounded. From four colonies I got 70 gallons, or 840 lbs. This honey comes almost entirely from black and tupelo gum; and as these trees do not bloom until May there is no danger of frost, so, as the natives say, they "hit every year."

My colonies have an excellent chance for early brood-rearing, as the soft maple blooms early in February, furnishing abundant pollen. I have had queens fertilized as early as February and as late as November.

Up to this year I have used queen-excluders, but have discarded them. Last year, by accident, a few of my colonies did not have these boards, and I noticed they did better than those that had them, so this year I used none, and my average was the best I ever had!

I also discarded escape-boards this year, simply taking off the shallow extracting-supers after smoking, and putting them in the honey-house, this being provided with escapes. The next day extracting could be carried on with ease.

We are absolutely free of bee disease—not a single case ever being known in this State.

Wilmington, N. C.

## Full Hives

BY GRACE ALLEN

Down within the darkness where the bee republic dwells,
Packed in polished centers of a thousand silver cells
Hangs the fragrant honey like a wonder-dream come true,
Hangs the fruit of summer, shot with beauty through and through.

Fairy-like the sun-lit gift of scented sweetness rare!
A million times have silken wings gone throbbing through the air
To drain it, drop by shining drop, from some bright-hearted bloom,
And bear it from the brilliant fields to ripen in the gloom.

Oh visionings of virgins! when the joy of service yearns
Till it fills to overflowing all the waxen-welded urns,
And seals them with a dainty seal, and lifts a song of praise
That summer's living sweetness shall not die with summer days!

# Heads of Grain from Different Fields

THE BACKLOT BUZZER

*That blamed bee in there had better look out. I got caught on a fly-wheel once myself.*

## Clipped Queens Superseded.

About four weeks ago I bought three golden queens. These I introduced without trouble to three queenless hives of bees, and had no trouble until about two weeks afterward, when I clipped all three queens. Being a novice in beekeeping I clipped both wings on each side, instead of only those on one side. After about one week I found one of the colonies queenless, and three or four days later another of those queens had disappeared. Two days ago the last one was found to be missing; and as every precaution has been used in opening the hives, I cannot but think that the bees have rejected these queens, due to my having clipped them wrongly, and killed them. I do not know whether the above is a common experience, but shall take precaution another time to clip on only one side. The proof that all the queens are missing is that queen-cells have been started in every hive.

I notice in a late number of GLEANINGS, in an article by Mr. A. C. Miller, that "Old Man Philetus" has all his combs filled with worker brood except the lower part of one comb in each hive, which is filled with drone brood. Are we to understand from this that it is desirable to place a strip of drone foundation in every hive in order to raise a small percentage of drones in this way?

Sacaton, Ariz., Oct. 24. HERBERT MARTEN.

[No doubt the queens were superseded because they appeared mutilated to the bees. In clipping, the queens are sometimes injured slightly so that they are superseded; but it is a little singular that all three of your queens should have been rejected, even though you did clip the wings on both sides.

The greatest difficulty is to prevent too much drone comb, and ordinarily it is not necessary to insert any drone foundation. Bees manage to build enough drone-cells to answer all requirements. In case of a queen-rearing yard it sometimes is best to provide drone foundation for a colony selected to rear drones; but in ordinary honey production such would not be necessary.—ED.]

## A Beginner's Questions.

1. How deep a space between brood-frames and hive-floors can I leave and avoid danger of the bees building comb below the frames?

2. Where two brood-chambers are used, how much space can I leave between the two sets of frames and have no comb built between?

3. Where dummies are used in place of frames, how much space is it safe to leave between dummies so no comb will be built?

4. In using the shaken-swarm method as explained in the late A B C and X Y Z, if I shouldn't want any increase how soon would it be safe to unite the shaken swarm with the old colony and yet keep them from swarming?

Coffeyville, Kans.

[Dr. Miller replies:]

1. You may feel quite safe with ¾ inch. In general you might be safe with an inch, although there is a difference in seasons and perhaps in bees, so that sometimes an inch would be too much.

2. It is a little doubtful if you can settle upon any given space between two stories for which the bees will have such respect that they will never try to bridge the space with either comb or glue. Perhaps the nearest to it is about ¼ inch. In a space less than this, glue is likely to be put; in a greater space, comb.

3. That depends somewhat on circumstances. If you put two dummies in the center of a brood-chamber, with a strong colony in best condition during a heavy harvest, the bees might sometimes build in a space of half an inch, pretty surely in a ⅝ space, and not at all in ⅜. If the dummies were at the side of the brood-nest, you might find ⅝ safe. If the colony be queenless, you are not likely to find comb built between two dummies outside the brood-nest, no matter how wide the space.

4. Probably about ten days. Of course all queen-cells would be destroyed.

## A Rain-barrel Cistern for the Beeyard.

One who does not work among the bees at a yard in an out-of-the-way place can hardly realize how gratefully many beekeepers whose yards are not most conveniently located receive a suggestion or plan, either to lighten labor or bring comfort to the operator who is compelled to do his hardest and most messy work under trying circumstances, as, for instance, right in the hottest time of the day. Just think of the item of water—not for the bees, as the yard should be located so as to provide for that, but plain pure drinking-water, to be had at the right time when one is fairly famishing for a drink. I have somewhat of an inventive turn of mind, and have thought out a number of schemes for the comfort of both operator and bees. The one that brings me more pleasure and comfort than all the others is my water-barrel. The idea may benefit some one else, so I will share the plan.

Get a large barrel—a 59 or 60 gallon size will do. Prepare a base or pedestal for the barrel to rest upon, lying down. Have the base just high enough so that a water-bucket can reach under the end of the barrel, which, in position, has the bung on top. Then get a cheap metal washpan (any old one will do) and cut or punch a round hole in the bottom of it. Get a hollow wooden-bung stopper (your merchant will give you one that comes ready made in the ends of a roll of wrapping-paper). Now tack this to the bottom of your pan so that you will have a good funnel, which you will place in the bunghole of the barrel. Then cut out a piece of screen wire and lay it across the pan to act as a strainer, and to keep out insects and debris. A little melted paraffine or wax will fasten it in place.

The barrel or cistern is ready for use. I might add that it should be placed on the shady side of the beehouse, where the sun will not shine on it, or, better still, under the house, if the house is high enough from the ground, which it should be. A small auger-hole in the lower end of the barrel, to be closed with a soft wooden plug, will make a fine faucet. You are now ready to fill your barrel with nice clean rainwater that will automatically serve you from every refreshing shower of rain.

It is not necessary to go to the expense of metal guttering. Two six-inch boards nailed together to catch the falling water at the eaves of the roof will do, and four six-inch boards will, when nailed together, make the box or tubing to conduct the water from the gutter down to the barrel.

As you draw out water to drink, or wash up the floor and fittings of the beehouse, which should be kept clean, the water will be replenished by the very first rain while you may be at home, or at another yard miles away.

In the hot summer time here in Alabama the water will get slightly warm in the middle of the day; but by the next morning it will be cool and sweet again. One barrel like this will make you a spend-thrift with water—always ready just when and where you need it most. In fact, that barrel will supply a small family with nice wholesome drinking-water.

Letohatchie, Ala. W. N. RANDOLPH.

## Origin of Foul Brood.

On page 670, Sept. 1, Mr. J. E. Hand says that bees wintered out in the open with good stores of pure honey (not sugar syrup) will be strong and healthy. He implies that sugar syrup and indoor wintering tend to European foul brood, paralysis, spring dwindling, etc.; and later, on page 671, he says cellar wintering frequently terminates in European foul brood. I am of the opinion that he is slightly mixed here. Black bees are supposed to be very easy victims of foul brood, and Italians more resistant. Blacks have been left to follow nature's plan or to the care(?) of the box-hive beekeeper, while some strains of Italians have been cellar wintered for generations. Why is foul brood worse in the tropics than in the more temperate climes? There the bees winter outdoors, have flights nearly every day, and in many tropical localities the honey harvest is on in our winter.

I am with the editor when he says it is no harder on bees to evaporate sugar syrup than to do the same work on natural nectar.

Foul brood does not spring from dampness, bad air, etc., but from a germ, as all our chemists know.

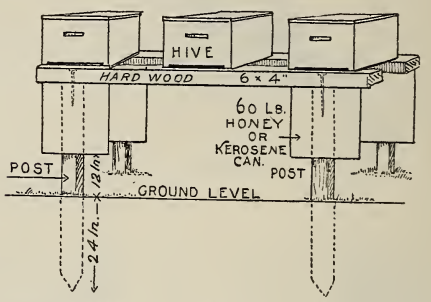
Georgetown, Del. GEO. W. LOUDER.

## In the Wilds of Australia.

I agree with Wesley Foster's remarks, last paragraph, page 166, March 1, in every detail. A person has to turn to his tools at times; for instance, when a supply dealer has not been prompt. I have had to make frames and run wax out on a wet board as a substitute for foundation through the delay in shipment of supplies.

I have a good location for bees here. I have had a continuous honey-flow since last May up to this time (April, 1914), from several varieties of eucalypts, acacias, and other honey and pollen bearing plants. I purchased a colony of Italians which has increased to ten since last September, all on self-spacers, 10-frame L., full depth, and all storing in supers.

I do not know the buzz of an angry bee nor the hum of a robber. My apiary has a northern aspect, with a crescent-shaped ridge at the back, heavily timbered, thus protecting on east, south, and west.




With the exeception of settlers' blocks on the creek this part of the country is wild. Until a few months ago, wild horses (Brumbies) were running about here, but are all taken in hand now. There are varieties of acacia here, so thick in growth that a dog cannot bark in it. Most of the timber is ironbark, a splendid railroad timber, and large areas are reserved.

I am sending a sketch of a device to beat the ants where troublesome. I have found it good, but rather expensive, so I have decided to exterminate them at first hand to save further trouble.

The principle is that spiders take up their location in the tins, and the cobwebs prevent the first ants from finding the bees. Beat the first and you beat the lot. First 4 posts 4 ft. 2 inches long; 2 cross-pieces 12 ft. long, 6 inches wide, 4 inches thick; 4 petroleum-cans; tops to be cut out of cans to telescope over posts. Cross-pieces can be spiked on the tops of posts without leaving ant-holes. I have tried tar in cups around the posts; but the heat causes a skin to form on the tar in three or four days.

JAMES PORTER.

Brush Creek, Australia, April 24.

## Coating for Metal on which Bees can Crawl.

Please tell your readers how to treat metal so that bees may be able to crawl out of a vessel made of tin or any other kind of metal. Last fall we had a hundred feeders made after the fashion of the Doolittle feeder, but we had them made of galvanized iron. Bees drown in them too easily. How can we treat the inside of the metal in such a way as to enable the bees to crawl out? How would it do to paint the inside, and sprinkle sand over the paint before it hardens. I have no doubt but that an article along this line will be appreciated by many beekeepers.

Mount Airy, N. C., May 7. J. E. JOHNSON.

[It is rather difficult to put a durable coating on metal which will enable bees to crawl up as easily as they do on wood. On this account sheet metal, which, besides being somewhat more expensive than wood for making a feeder after the pattern of the Doolittle division-board feeder, is also somewhat objectionable on account of the bees drowning, as you say. Possibly painting the inside of the feeders,

and then dusting over with clean sand, would be all right. But there is just a bare chance that the paint, especially when not thoroughly dried and seasoned, would be objectionable to the bees. Dipping the feeders in hot paraffine would enable the bees to crawl out much better, although it might be wise to dust on some sand before the paraffine has cooled.

You might find that you would have to use a wooden float in each feeder to prevent drowning, as this is sometimes an advantage given with the wooden feeder, though not often.—ED.]

## What Associations Can Do.

The heavy rains of last spring almost wiped out sweet clover as compared with former years. Two years ago our association supplied each of our members with 5 lbs. of clover seed for sowing on spare places and spots that had been bare of any useful vegetation. This year the practice was continued. Each good standing member receives 5 lbs. of seed to sow this spring. We are at a loss to see one association outside of ours advocating the preservation of forage.

In Europe the beekeepers' associations have spent a great deal of money in supplying the residents of cities and towns with honey-producing trees and plants, especially in Germany and Austria-Hungary. Honey in general is better known and more appreciated by the average citizen than in this country, and prices are better by far than here. Their conventions are visited, mostly by men who have the welfare of the bee more at heart than any other item of the industry. Why is this? Because the first item considered in this country is "The money there is in it;" hence the many failures. I speak from experience. I have yet to find the man who thinks he would like to keep bees who hasn't asked the question, "Is there money in it?"

Cincinnati, O., Feb. 8. HENRY REDDERT.

## How I Stimulate Breeding.

In March and April I uncap the sealed honey of one or two frames, and then put them next to the combs having brood—*i. e.*, on the two sides of the brood-nest proper. Within a few days these combs are emptied, and the queen lays in them. On another visit, in about seven to twelve days, I repeat the same process until all of the sealed honey is consumed. About the beginning of May (if the colony is to be run for the production of honey) I put on the super, and I commence feeding at the entrance in the Simplicity feeder, with light sugar syrup. Just before dark, every evening and early in the morning, I remove the feeders.

Feeding in this way is, of course, elaborate, but gives the best result for breeding and for drawing out the comb foundation in the sections so as to have them ready before the honey-flow commences. In this way the bees more profitably occupy their time during the honey-flow, collecting and filling the prepared combs instead of losing most valuable time in building combs.

I have closely observed that feeding continuously day and night keeps the bees indoors, while feeding in the night only renders the bees very energetic and zealous; therefore I do not allow my bees to enjoy artificial food during the day.

M. G. DERVISHIAN.

Nicosia, Island of Cyprus, Sept. 5.

## Bumble-bee Shown the Door.

While watching my bees one day I saw a large bumble-bee enter the hive, evidently an unwelcome guest with suspicious designs. After a short time he reappeared, escorted by two guards, each firmly holding one of his hind legs. They allowed him to use his free legs with good speed till they reached the edge of the platform, where they held their prisoner fast while he pleaded for liberty, and (we believe) promised never again to enter the sacred precincts of their home. Then they released him and he flew away unharmed—a wiser and (no doubt) a better bumble-bee.

Miller's Falls, Mass. C. A. SHEARER.

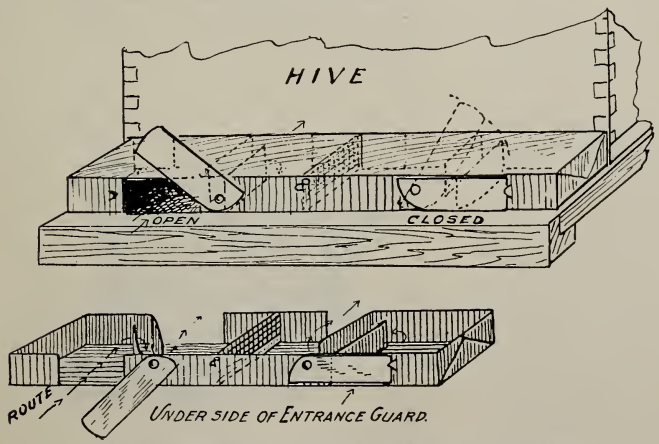
## Colony with Young Queen Swarms.

The advice usually given to prevent swarming is to keep the colonies supplied with a young queen of the current season. May 23 one of my rousing colonies superseded the queen, the virgin queen hatching on that day. I had previously exchanged combs of hatching brood for sheets of foundation to prevent swarming, and did so again. July 31 the new queen was clipped and the ten-frame brood-chamber reversed back to front, which was on the deep side of a Danzenbaker bottom-board. A full super body was on top all the time, as there were not bees enough for two supers. Aug. 15 the colony swarmed with a lot of queen-cells left. There was no honey in the brood-chamber at all, and no honey in the super at all. They were getting only enough for breeding. The only extracting had been on May 26. This was my only swarm, although my other colonies had queens from one to two years.

I had another rousing colony which gradually decreased in population and brood until the bees died of old age, and the queen laid only very sparingly, but still the bees did not supersede her, so I had to kill her right away to introduce a new one.

TOADS IN THE APIARY.

In order to prevent toads eating the bees in the apiary I had to fence the whole apiary with wire netting, ¾-inch mesh, properly fixed in the ground, and 18 inches in height. The toads do climb the fence, and are found inside the next day. They do not get stung by the bees—no chance; and if they did, they are invulnerable. The bees are caught with the greatest dexterity in the air




Metal entrance-guard used by J. S. Kavanagh, Fort Thomas, Ky., to prevent robbing of weak colonies.

by the toads with their furred tongue when they are not swept away from the alighting-board.

BEES SUFFOCATING OVER SOLID ESCAPE-BOARD.

I like very much the idea of the ventilated escape-board with screen instead of wood. This year I had an illustration of the danger of the common bee-escape used where there is no protection from the sun. Two hours after setting the escape, I accidentally had to raise one of the supers. I found that the bees were suffocating from lack of ventilation before passing through the escape. With wire screen there would be no danger. I have noticed, also, that the next morning the combs are cold instead of warm, as they would be if the heat from below were passing up. C. M. CARMONA.

San Rafael, Trinidad, B. W. I., Sept. 6.

[There are many instances of colonies swarming, even though the queens are less than a year old; but as a rule the colonies with young queens are less likely to swarm than are those with older queens.—ED.]

## From the Old Country, Cumberland.

I have never seen an article from the Old Country in GLEANINGS, and I wonder if you can spare a corner for a few lines from a Cumberland lass. My husband has been interested in bees for several years, but recently he got another "bee in his bonnet," and was married; so, of course, his bees had to follow him to his new place of abode.

We brought the colonies by train, one at a time, then had to carry them about two miles. Though very slow work we had the satisfaction of knowing that hardly a bee was damaged, and the following morning they were working away quite at home.

Being in business in the city, my husband has only his evenings and one afternoon a week off duty, but now, being an apprentice, I am able to help him a little in making frames, wiring and fixing foundation, and looking out for swarms. I also help while he is manipulating. I can spot the queen almost as soon as he can. Fortunately we have had only one swarm among our home colonies; and, needless to say, I was most excited (not being used to bees). As they were not likely to settle I had to resort to the sprayer; and, not having gained sufficient courage to secure the swarm myself, I had to seek the aid of a neighbor. However, by next year I hope to be more proficient. Bees, I consider, are a most fascinating study as well as a profitable hobby. Nearly all my reading at present is confined to bee literature—my husband, fortunately, having a good many books on the subject.

We have six home colonies, and seven about six miles distant, including American and British Goldens, Italians, and Black.

A HAPPY WIFE.

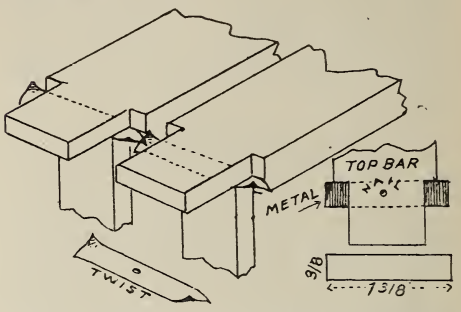
## The Smoke Method of Introducing Queens.

On page 388, May 15, Major Shallard practically asks if any one adopted the above method of introducing queens before 1885, the year he commenced to do so. I may state that I adopted the method in 1882 and in 1883 and afterward, when queen-rearing on an extensive scale, I rarely introduced in any other way unless the conditions were very unfavorable. Both virgin and laying queens were introduced by smoking, and the losses were, if any thing, less than by caging. Many a morning I have run in 20 or 30 queens by smoking after removing the originals to send away by mail—all finished in seven or eight minutes. The smoke method is by no means new, as will be seen by turning to some of the bee-journals for the '80's. I have been surprised to see so much made of it of late, as though it were a recent discovery.

Auckland, N. Z., June 24. I. HOPKINS.

## Simple Spacing Device.

The illustration shows my frame-spacing device. My idea is to bend *each* end of the metal one-eighth of a full turn. The reason for giving only one end a twist is that with a quarter turn the metal sometimes tears partly off.




My frames have narrow ends as shown in the drawing. I like them thus, as it gives a better grip for the fingers.

Sacramento, Cal., Nov. 12. A. D. MUNGER.

## Buying vs. Making Foundation.

On page 371, May 15, Arthur C. Miller says that he buys his foundation for five cents a sheet, and is thereby saved the trouble of making it. Now, that is all right for him; but I have to pay 65 cts. a pound for brood foundation; and after paying freight and having a lot broken besides, I find that it costs me about $1.00 a pound for full sheets of foundation in good condition. Since I prefer to use full sheets, I believe that in my circumstances I am better off by making my own.

Albany, Vt. J. M. CARTER.

## New York, Not Massachusetts.

In the Oct. 15th issue you have the address at the end of my article on swamp bee-pasture, p. 812, as Mayfield, Mass. It should be Mayfield, N. Y.

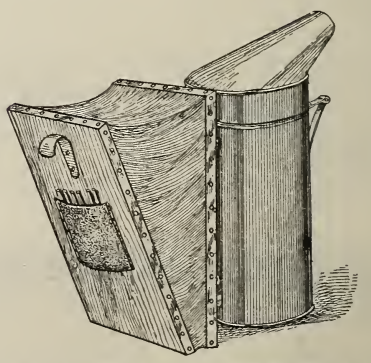
My bees are all ready for winter. Sugar is high, and some will not feed on this account. Bees will have to be fed here more or less—some half.

Mayfield, N. Y., Oct. 24. G. W. HAINES.

## Four Swarms from One Colony.

I had one colony that gave four swarms in eight days, and kept strong in bees all through. They were all good-sized swarms.

Waterford, Ct. F. M. JACQUES.



Handy place for matches. Suggested by G. E. Leavitt, Chattanooga, Tenn.

A. I. Root

# OUR HOMES

Editor

For God so loved the world.—JOHN 3:16.

Be fruitful, and multiply, and replenish the earth, 7:7.

and subdue it.—GEN. 1:28.

Knock, and it shall be opened unto you.—MATT.

Somewhere about the year 1840, or perhaps as late as 1845, a few miles away from the log house in the woods where I was born there used to be a salt-spring. I think they called it a "deer-lick" in olden times, as the deer came there to lick the salt water; and I believe that, in early days before salt for table and domestic use was prepared in great factories, the people used to boil the salt water to get salt for the home around the region of Liverpool, Medina Co., Ohio. This salt-water spring was near Rocky River; and besides the salt spring a peculiar black-looking oil was found there on the water. It seemed to ooze out of the rock. The people saved it, and carried it around in bottles to cure rheumatism. In this form it was generally called Seneca oil. I believe that was about all the use they made of it until the oil excitement broke out in Pennsylvania in 1859. This was when I was 19 years old; and as I had been eager all through my boyhood to hunt up and utilize God's gifts (although I did not enumerate them in that way in that early day) I caught on to the craze of digging for oil, or drilling for it. The people near that old salt-spring became excited also, and a couple of young tinners in the town of Liverpool made some tubing of heavy tin, put down a well back of their tinshop, and got quite a little oil.* Very soon it began to be discovered that it could be used instead of tallow candles for lighting our homes. I was so busy in my shop as a watch-repairer about that time that I could not well get away except on Sunday (or at least I thought I could not). I had no money to hire a horse and buggy, so I started off one Sunday morning and walked ten miles to Liverpool and the same distance back, at night. I am glad to recall, however, that I came home with a troubled conscience. I knew what my good mother would say about such a Sunday tramp. On that trip I saw a great wooden tub or tank filled with salt water and a little oil on the surface which they pumped into it with a steam-engine. Please remember that gasoline-engines were unknown at that time. Those early wells were drilled down perhaps one or two hundred feet, and we thought then that it was a great thing to be able to go *so far* into mother Earth. Quite a little gas came up with the oil, but it was allowed to pass off into the air or to make a beacon light at night. It seems strange that people at that early day did not seem to think it was worth any thing of any account. Well, these shallow wells after a brief time gave out, or they did not get enough oil to pay for pumping. Later on, by going down a thousand feet or more they got gas and oil, and quite an excitement resulted. Just now, fifty years more or later, we find by going two or three *thousand* feet, instead of only two or three hundred, the supply of oil and gas seems almost inexhaustible. See the clipping below from the *Plain Dealer* in regard to some recent developments not far from that first start in Liverpool.

In July there were eighty wells yielding gas in quantities of from 500,000 to 10,000,000 cubic feet a day.

Gas was first struck in the district last January when a gusher well yielding 10,700,000 cubic feet a day was sunk on the property of J. L. and H. Stadler underneath the Harvard-Denison bridge.

The boom commenced immediately and wells yielding as much as 4,000,000 cubic feet a day sprang into existence on adjoining properties.

Now, friends, I need not undertake to tell you what has come in fifty years from the discovery of oil and gas in the bowels of old mother Earth. I *could* not tell you, even if I *would,* for I am not well enough informed. I *do* know, however, that oil and gas are now found more or less almost all over the whole face of old mother Earth. The first excitement was mainly in Pennsylvania. Later the Virginia oil-fields threatened to equal and even did eclipse Pennsylvania. Then California discovered they had an abundance of oil to run locomotives, to make good roads, and who can tell what else? Then away across the waters (where they seem to have forgotten the oil craze, and gone into a craze for killing each other), great developments ensued, especially in Russia.

Reader, have you ever stopped to think what the world would be now if it had not been for that discovery of oil and gas? There would have been no millionaires like

* In GLEANINGS for Nov. 1 I gave you a picture of the old windmill when it was first started. Well, in the description I failed to mention that it not only printed GLEANINGS but it worked a home-made drill for drilling for gas and oil. In the basement of the factory that held the windmill I put down a hole; and when I got tired of working the drill by hand I arranged a piece of mechanism that would pull the drill up a certain distance and let it drop; and that old home-made drill is down in old mother Earth a hundred feet or more at this present date. It got stuck in the rock; and with my limited experience and crude implements I did not succeed in pulling it out.

Rockefeller, or not so many of them. Without gasoline the gasoline-engines would have been impossible or next to impossible; and automobiles could not have been launched and so nicely perfected, without the aid of gasoline. Why, gasoline is getting to be such a commodity now that it is *almost* as plentiful as water. A few years ago, if by some carelessness your gasoline gave out from your automobile you might have to walk miles on foot and carry back a gallon of gasoline; but just now, not only every city but almost every little town or four corners with a country store has a sign out with the legend "Gasoline for Sale." And many of these little shops will pump the gasoline right into your automobile, having it measured automatically, and start you off in less time than it would take to water your horse in olden times. The farmer, instead of laboriously hauling up logs and spending a great part of his time winters in "chopping wood," does his cooking and heating by gasoline. In fact, we have come to a point where there is almost no place to put chips, kindling, wood, or shavings. Our houses are warmed and sometimes lighted, and the cooking done by gas or gasoline. The good old times are gone; and while the demand on the housekeeper and the homemaker are in some respects more than what they used to be, woman's work is lightened in a thousand ways, and we are learning useful lessons every day—yes, learning them at a tremendous rate too. May God give us grace, while we recall the manifold advantages of the present time and contrast them with the past, to turn our eyes finally to him in praise and thanksgiving for what our eyes have seen.

On page 780, Oct. 1, I spoke about a little scrap of paper torn out of some Bible that happened to be down among the disorderly scraps of leather I happened to turn up with my foot while I absent-mindedly pushed my foot among the scraps at exactly the time I mentally made my appeal, "Lord, help." Since I have mentioned the incident our readers have referred to it by letter. The question is, did that bit of paper get down among that leather by pure accident? Let me go over it a little more fully:

The shoemaker was an ungodly man. He never had a Bible of any sort in his dirty shop. It is not likely that anybody would bring a Bible there; and it is not often here in America that a Bible gets torn up. I do not think I have ever seen a torn or mutilated Bible more than once or twice in my life. People do not use *Bibles* for waste paper, or at least not very often; and yet there was a piece of a leaf of the Bible found among those scraps of leather. It contained just the words I so much needed, and no more. Skeptics will say it just "*happened*" to be there. I grant you this *might* be; but it happened to be on the precise *spot* on that littered floor where my toe was resting. Furthermore, the very instant, the very day of the week, the very hour of the day—in fact, at the very minute, and we might almost say the very second, I uttered that prayer, "Lord, help!" the toe of my shoe, by *another* strange coincidence, pushed away the leather so that a glimpse of the paper met my gaze as I breathed in distress (a distress for souls going down to ruin) the brief but intensely uttered (mentally, of course) call for help. I submit to the readers of GLEANINGS if it is likely all that just "happened." The old friend who declared that that scrap of the Bible was enough to save the world is now (Oct. 21) near death's door.* He remembers the incident, and I have had several talks with him about it.

Well, friends, what has this to do with the oil business? Why do I drag it in here just now? Does it require any great stretch of imagination to believe that the oil and gas hidden away down in the earth were put there ages ago by the loving Father, to be hunted up and brought to the surface for the children he loves, when humanity has got to the point where we could not well get along without it?

"Knock, and it shall be opened unto you."

I have been laughed at sometimes because I claimed this text refers to science and civilization as well as to spiritual things. The oil was *there* all the time, like the scrap of paper among the leather; but the oil came to light when humanity was ripe for it, just as the scrap of paper came to light when I prayed earnestly for help. Oil and gas have blessed humanity. I have not yet heard that the use of gasoline or kerosene has been prostituted to the carrying-on of the European war except in the use of gasoline for the aeroplane; and I hope something may happen to prevent using it to drop bombs, especially where the bombs are dropped on hospitals devoted to the care of the wounded, as has happened already.

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* To-day, Oct. 22, I learn that the old friend of whom I have been speaking died at almost the very time I was dictating the sentence above. Less than a week ago I had quite a talk with him. He admitted that his end was near; but when I suggested that the dear Savior was ready and anxious to take him by the hand and pilot him across the dark river, he had been so many years holding back that it seemed hard work to accept the words of promise I repeated to him over and over. God only knows the outcome; yet I feel happy to think that I made that visit, and did my best to make it plain to him.

While I write (Oct. 21) the papers tell us the Germans are massing their zeppelins to drop bombs on London. I mentioned the matter to Ernest a few minutes ago. He said something like this:

"Father, if they undertake to do *that*, there will be such a world-wide protest that the Germans will be obliged to stop."

God grant that this may be true.

There used to be a class of people who claimed (or pretended to claim) that there is no God; and just one man, a beekeeper too, made a remark to the effect that he did not see any particular need of a God.* I believe that this doctrine is now abandoned, or at least largely. All mankind now acknowledges, and I hope bows down in reverence to the God of creation. There are, however, quite a few who still maintain that it is a myth that God *cares* for us. They cannot believe that God loves us individually. A poor friend once said to me in jail that it would be a happy moment for him when he could believe that God loved or had any regard for his poor self. It was years ago, and I cannot remember now the outcome; but that single expression I have used among our texts, "For God so loved the world," ought to bring happiness and joy to every son of humanity.

In closing let me make a little summary. During my comparatively brief span of life I have seen many wonderful things invented. I can remember when tallow candles or a greasy lamp filled with lard oil were the only means of lighting our homes. Many an evening have I spent reading by a tallow candle. I remember the snuffers sometimes used to get lost by the careless children. Some of the other youngsters would drop the greasy, smutty contents out of the snuffers. It was my privilege to see oil brought out of the ground, and to see it go through the different stages of refining; to see utilized the waste product running out into the creeks and rivers until it got to be a great and dangerous nuisance. I have lived to see these waste products utilized in a thousand different ways, while the doctors' shelves now contain more medicines made from the refuse from the refinings than from almost any other source. One invention or discovery seems to pave the way for another. The Wright brothers could not have invented their flying-machine without gasoline. Gasoline-engines are now not only moving great factories, but they are supplying strength to the farmers and to the farmers' wives. They are moving little electric-light plants to have the farmer's house and barn lighted in a way that lamps and lanterns could *never* do. During the past fifty years the whole wide world has roused up and come to life. I have not only been permitted to be present at the birth-time of oil and gas, but I might almost say I have seen electricity in a like manner ushered into this world of ours, and grow to the mighty proportions of the present day. There has been talk about the "good old times," and there *were* some good things in olden times that I am sorry to see being dropped; but who is there whose eyes rest on these pages who would want to be transplanted to the times of fifty years ago? You might say in a thoughtless way you would like to try it; but, my friends, you would get homesick in less than 24 hours. With the wonderfully good things that have come to light from the hands of the kind and loving Father, I am sorry Satan also has managed to wedge himself in here and there. I have been trying to think that it is perhaps well for us that we *do* have to fight evil—at least in certain ways; but may God help me, as I close this Home paper, to have faith to believe some "good things" will in some way come out in the end from fighting the liquor-traffic that has so long oppressed us, and from the terrible war that is now raging without any particular symptom of letting up at the time I close this paper.

Just a word more before closing. Mrs. Root's mother died over in England when Mrs. Root was but a little child—only two years old. As photography was not known at that time she has no picture of her good mother. Well, I would give a hundred dollars for just a *picture* of Mrs.Root's mother, but it cannot be furnished. Once more: I would give another hundred dollars to hear that mother talk to the children she was obliged to leave. But the phonograph and dictaphone and these things that are so common now had not then been invented. I think I saw about the first telegraphic wires that were put up in Ohio. The boys at school made fun of me when I said that men could talk through the wire; but now they talk without *any* wire, clear across the ocean. I might go on telling about the things that have been discovered and developed during my brief lifetime.

Now, then, friends, have we at this stage explored and invented every thing? is there no more discovery to be brought out like getting oil and gas out of the bowels of the earth, like chaining the lightning to do our bidding by driving our cars, making fast the reflections from a looking-glass, and holding human speech for future generations? Has

* The fool hath said in his heart, There is no God. —PSALM 14:1.

the loving Father got to the *end* of his wonderful gifts to the children he loves? You know one of our several texts says, "For God so loved the world," etc. What have we given *him* in return for all his loving kindness—for these great and wonderful gifts that he is heaping upon us? Some writer in the *Sunday School Times* recently said, "The man who is at war with *God* will soon be at *war* with his fellowmen." We know that, because we have seen it. Now, is it not also true that the *nation* that is at war with God will sooner or later be at war with other *nations?* Some other writer in that same periodical said there is not a genuine "Christian nation" on the face of the earth; and the more I think of it, the more I am afraid it is true. We might cite our own United States with the motto on our coins, "In God we trust;" but how about being in partnership with the brewers and distillers in furnishing liquor? Away back in the sixth chapter of Genesis we read that it "repented God" that he had made man. Back in my childhood my grandfather on my mother's side, I am sorry to say, was a skeptic. In commenting on this passage I remember hearing him say that one might almost think that God "lay awake nights" planning how he might best *manage* his rebellious children. Some of you will make a start at the above, and say it is awfully irreverent; but yet does it not remind us of a great truth that we might overlook? Would it be any thing *so very strange* if that loving Father *should* pause and consider whether it were well to keep passing out these great and wonderful gifts to mankind, especially while they are intent on fighting and killing each other as they are now doing in the Old World? And may God help us when we take into consideration the greed and graft and bribery and trickery all the while going on in our own country. Have we here in America very much to boast of? Is there not a greater need than *ever before* of a loving Savior and Redeemer to call us to order and to make us ashamed of ourselves?

## THANKING GOD FOR GOOD NEIGHBORS.

It affords me great pleasure to find the following in *Collier's Weekly* for Oct. 17:

COUSIN CANADA.

As the war rages on, and we find ourselves pinched by it, we can and do thank God for good neighbors. The most wonderful thing in North American life is the fact that *for four or five thousand miles our frontier is Canada's frontier; and not only is there no fort upon it, but there is no place where any one in either nation wants a fort.* They are people one is glad to have next door, the Canadians. Somtimes a Taft or a Clark says something that makes us blush for him; but the nice thing about these people is, they understand what a loose tongue is, and pay very little attention to it. A good deal used to be said about annexing Canada; and once in a while a man comes back from there so full of admiration that he wants to annex the United States to Canada instanter; but most of us feel—and we sincerely hope Canada can share the feeling—that just being neighbors is the best thing for both of us. We have the same problems in the main, and we are glad to have Canada show how she thinks they should be worked out. We have a good deal of common property in the lakes and rivers which lie between our shore and hers. It is a really beautiful thing to think of—in the war-torn autumn of 1914—that we have never had a serious difference about this common property. This is a good time to vow that we never will. Our Lady of the Snows is not so cold as her title might lead one to think. She is distinctly our sort—and we hope she won't mind our saying so. The frontier is an imaginary line only. Thoughts are the true bond of friendship. Let us draw closer and closer to Canada in thought. Let us seek, nationally and individually, to foster the relations which make us thank God for Canada as a neighbor.

I want to call particular attention to the sentence in italics in the above. I did not know—at least I did not think of it until my attention was called to the above—that there are no forts between us and Canada; and may God grant that there never may be; and, furthermore, it is my prayer that forts, fortifications, and men-of-war may speedily disappear from the face of the earth. I know there are many people who are ready to say amen to the above, because I see it voiced more or less in almost every periodical.

## TOY PISTOLS AND OTHER TOYS IN IMITATION OF IMPLEMENTS OF WAR.

*Dear Brother Root:*—I have just read Our Homes for Sept. 15. I think it is fine. I hope you may some time write on the toy-pistol curse and other seemingly innocent practices which excite wrong desires and lead to serious evil.

Sulphur, Okla. CHAS. R. HILL.

Amen to what you suggest, my good brother. I have had the matter in mind. Now let us, each and all, especially the Sunday-schools of our land as well as the day schools, discourage by every means in our power having any thing for the children that would suggest war—tin soldiers, toy pistols, toy swords, and, perhaps, even toy drums. Let us encourage not only here in America, but in the whole wide world, a hatred for war and warlike implements. There has been quite a start made for a safe and sane 4th of July. Let this safe and sane organization rule out *guns* and *cannons*. Let us, each and all, in view of the awful lessons God is sending us from away across the waters, do every thing we can to teach and practice "peace on earth and good will to men" instead of war and bloodshed.

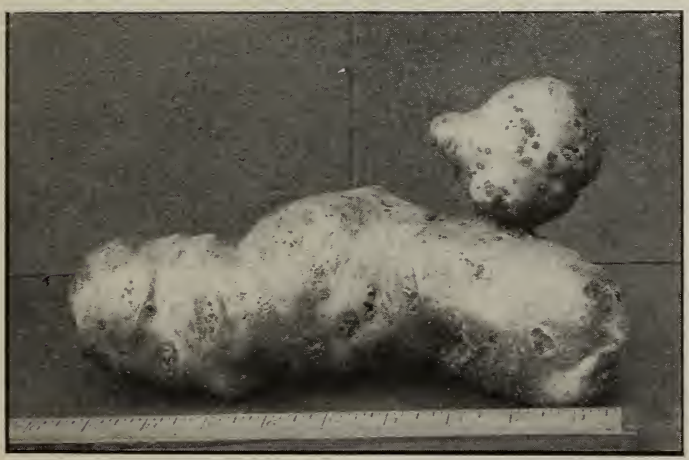
# HIGH-PRESSURE GARDENING

TAKING CHANCES, ETC., IN GROWING GARDEN STUFF.

We have had an unusual fall here in the North, dear friends, and I fear that many of us have not remembered to thank God for nice growing weather clear up to the 28th day of October. Yes, we had nice beans and tomatoes almost up to the first of November. It is true there have been some slight frosts, but none to hurt truck on high ground like our own. When the early peas and early potatoes began to go off and be out of the way, I planted Bantam corn and suggested to the children that I was going to have Early Golden Bantam corn wherever there was a vacant place. I kept on so late that they laughed about my getting roasting ears away up in October. Then I got half a peck of white marrowfat beans; and after I stopped planting corn I put in beans for a couple of weeks later. Well, the corn did all right and gave us the nicest golden-yellow ears I think I ever ate; and when we had more than we could use I enjoyed the fun of carrying them around to the neighbors. Well, most of them had become tired of garden stuff along in October, so there was not much call for the big white shell beans; but just as the frost threatened I went all over the garden with a good stout man, and had him pull all the beans he could find, with plump yellow pods. They were piled on a wheelbarrow and run under a shed; and as the temperature goes up and the sun comes out again, we are going to spread them out to dry, and I shall have quite a crop of "home-grown" white beans.

Some of you may suggest that you have no time to take risks; and, to tell the truth, we had several rows of beans almost ripe when the frost came, and you might say that it is a waste of time and seed to take such chances. Not so. You all know how much it is worth to have a crop of clover or vetch to turn under; or almost any other legume. Well, now, a dense row of white beans loaded with pods, even if they are only fit for snap beans, will be worth as much as a big dressing of stable manure. You try it and see. I am going to put some choice crops next season where those green beans were turned under. Our dasheens made a splendid growth clear up to the date I have mentioned, and we got them in just as the freeze came (for it was a freeze, and not a frost). There was no frost visible, but there was a skim of ice on the water-trough next morning. Such a freeze does not do nearly as much damage as a frost.

The sesame plant I have spoken about several times did not mature any good seed here in Ohio. Probably it will have to be grown further south. The plants were covered with pods when the frost took them. Our cantaloup melons also kept ripening clear up to the date mentioned. We had also beautiful egg-plants that had to be gathered just before the freeze. One big plant contained eight good-sized eggs.



An Early Ohio potato weighing 2 lbs. 2 oz., and measuring 9½ inches in length, grown under the irrigation system illustrated in our issue for Oct. 1.

The irrigation apparatus I illustrated and mentioned in our Oct. 1st issue, of course helped greatly. In fact, it kept our Early Ohio potatoes growing briskly clear up to the freeze. When I first installed the apparatus a part of the vines had died down; but plenty of water during a warm period started the rest, and they grew amazingly. We give a picture of one specimen.

Of course, some of the stuff started up with the water, made a second growth, and the small potato that shows in the picture was, I presume, the outcome of the irriga-

tion. The big potato, of course, increased in length and size; and under the spur of good weather for the potatoes, and plenty of water, the little one was an offshoot.

Just now every thing of any value has been gathered from the ground. Our big team turned under all the trash, weeds, etc., that had sprung up after the crops were off, and they are well out of sight.

To-day, Oct. 29, we were planning to put in rye so as to have the ground constantly occupied, but this morning it was rainy. As it is getting to be rather late for the rye for a winter crop, our good teamster suggested that he *could* sow rye broadcast and harrow it in, even if there was a drizzly rain, and now it *is* all in, ready for winter. You see where we practice "high-pressure gardening" we expect to have some sort of green crop occupying the ground every month of the year, winter as well as summer. Last year we had terrific rains that washed quite a little of the fertile soil down into Champion Brook. If the rye gets a little start it will hold the soil and prevent wash; and in order to avoid this damaging wash, as soon as the weather will permit the big team is going to plow a furrow down through the middle of the garden and off toward the creek; and as the ground slopes on both sides just a little toward this open ditch, I do not think we shall have much wash, for the ground is pretty thoroughly underdrained besides the open ditch.

Besides the stuff mentioned above, we had quite a crop of Hubbard squashes to divide around among the children. And there is another little squash called Table Queen, the seed of which was furnished by a good friend, C. H. Peterson, Garden City, Minn. It is as good as a choice Hubbard squash. But they are little bits of squashes, and a good deal earlier than the Hubbard. When baked on the "half shell," and eaten with butter, salt, and pepper, they are certainly delicious.

Last, but not least, we had two nice hills of helianti. (See pages 317, April 15, and advertising page 21, May 15.) These came from two tubers sent by the Burgess Seed Co. The plant when in full bloom very much resembles the artichoke mentioned that my mother grew years ago. See page 317 as above. The yellow flowers are really little sunflowers. They are covered by bees when in full bloom, and bear little seeds resembling sunflower seeds. The small tubers are on the end of the rootlets that run out two feet or more in every direction. While the plant was growing thriftily I dug a few of these little tubers about as large as one of your fingers and about as long. When cooked very much as we cook asparagus, at the first taste I had one of my "happy surprises," and became quite enthusiastic over the helianti. I sent and got a leaf from John Lewis Childs' catalog, and prepared to give the plant a big write-up; and I would do so *yet*, if it were not for one circumstance. One of the girls in our office who helps to fold up GLEANINGS very opportunely remembered what I said about my "mother's artichokes;" and she asked me if I would not like a few of the real *old-fashioned* "artichokes." Now, *here* is where the trouble with helianti comes in. Mrs. Root cooked the artichokes exactly as she did the helianti, and we have had both kinds for dinner twice; and I am obliged to confess that the artichokes, cooked exactly like the helianti, are just as good; and I am greatly surprised that the artichoke has never been made use of before for a wholesome and delicious vegetable to take the place of Irish potatoes.* One trouble with both artichoke and helianti, as I understand it, is that neither can be dug and kept in the cellar like potatoes. In fact, John Lewis Childs cautioned me in regard to the matter. Here is what he says about it:

> Helianti may be left in the ground in the North the same as artichoke. Helianti will do well in Florida or in any Southern State. It does not keep well out of the ground, so it should be dug as wanted; and in the North, when you wish it in the winter when the ground is frozen it should be dug and put in earth in the cellar. It dries up if left out of earth, and does not grow after it is dried up, and is not good for food. You should tell your readers that the helianti must be planted as soon as received, as they do not keep well out of the ground. JOHN LEWIS CHILDS.
>
> Floral Park, N. Y., Oct. 1.

One of our good friends, a reader of GLEANINGS, away off in California, is very enthusiastic about the helianti, and he says it yields out there *a half more* than potatoes. He has sent me some very nice samples which are much larger than we get here. His address is John G. Gretzinger, Hynes, Cal.

One great objection to the helianti, as I see it at present, is that the tubers are so small and so scattering. You would have to dig over carefully a square yard or more to get all the tubers. In our Medina clay soil it is quite a task to dig a single hill. The artichokes are so much larger it would be a comparatively easy matter to dig them. John Lewis Childs gives the following as to their food value:

Dr. Koch, a well-known German food specialist,

* Is it not another case of sweet clover—the plant that was kicked and cursed and pronounced a noxious weed for years and years, but which is now rivaling even alfalfa that has in times past blest and is now blessing the world?

gives the following figures as units of food value: Helianti, 540.5; green peas, 465.0; turnips, 133.0; potatoes, 126.8.

He also offers to furnish pink-tubered helianti, supposed to be the best, three tubers for 10 cts., or less in quantities. He also offers seed at 15 cts. a package, and says they will bloom the first season and make a lot of tubers.

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DASHEEN BULBS FOR PLANTING.

In order to answer many questions I give below two advertisements from the *Florida Grower*.

DASHEENS.—$2.50 bushel; others ask $4. Cassava, Kudzu, Para Grass, Ribbon Cane. POET EDEN FARM, Riverview, Fla.

SEED DASHEENS for sale, $2.50 per bushel, f. o. b. C. J. BARRETT, grower, Crystal Springs, Fla.

I confess the above is free advertising; but under the circumstances it will save me answering questions. I shall have, perhaps, thirty to forty bushels of dasheen tubers of my own growing, but they are not for sale. In fact, so long as I am writing up the garden department of GLEANINGS I shall have *nothing to sell*. Should I undertake to sell the things I write up or write about, you might accuse me of having an "ax to grind." Whatever I choose to *give* or offer to the readers of GLEANINGS, I suppose no one will object to. We are planning, as I have told you, to give every paid-up subscriber for one year or more 1 lb. of dasheen tubers. But said subscriber must find out from his postmaster what the postage will be from Bradentown, Fla., to his own place, and then he can send the amount here to Medina, O., when he makes his application for the pound of tubers. Three grains of the Rainbow corn will also be included if you mention it.

In addition to the above we have just received an advertisement reading as follows:

If you want to make sure of an 8-lb. "Trinidad dasheen-seed" shipment in time for spring planting, send me $1.00 now. M. LEIDERSDORF, Daytona, Fla.

See advertising columns.

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I have a nice increase of dasheens. I have tried them out and find both bulb and stock delicious. Won't you give us a little advice again as to the methods of preparing for the table, and especially as to care in northern climates, for next summer's planting? Will the old bulb keep over winter? Shall we pack in sand, dry or moist?

S. W. MORRISON, M. D.

Embreeville, Pa., Oct. 19.

My good friend, it is a very simple matter to prepare dasheens for the table. You may recall that the Government bulletin advised washing the bulbs in water containing a little baking soda; and if there is any tendency to acridity, first boil the dasheen in a little soda water and pour the water off. Then add fresh water and stew until the bulbs are soft. Add butter and milk, or cream, so as to make a sort of soup like oysters and mushrooms. Then put in oyster crackers as you would for oysters. This is our favorite way of cooking them; and you can cut up the whole plant, and stew with tubers. When they are matured, bake them exactly as you would potatoes. This refers to the underground part only. As to whether the old bulb will keep over winter here in the North, I cannot answer. As they keep without any trouble down in Florida, if kept where they can have plenty of air, and spread out on a screen of fine-mesh poultry-netting, we have no trouble.

Some I grew a year ago and kept in a cellar here in Ohio spoiled because I did not spread them out and give them plenty of air. A few of the tubers, however, that did not get soft were planted, and they grew all right. My impression is that, if packed in dry sand and kept considerably above the freezing-point, they can be kept over all winter all right. In fact, seedsmen keep bulbs of caladium and elephant ears (which are of the same family) without any trouble, year after year. They must, however, be kept in a place sufficiently dry so that they will not get damp and moldy.

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SWEET-CLOVER SEED—OVER $1400 IN CASH FOR JUST ONE WAGONLOAD.

One of my good friends sent me the following, clipped from the Omaha *Daily News* of Oct. 5:

FARMERS GET RICH ON SWEET CLOVER.

HASTINGS, NEB., Oct. 5.—Progressive farmers in the North Platte district are making small fortunes off sweet clover hay and seed crops, for which there is an enormous demand, according to A. J. Mills, who has just returned from there.

He said every spare bushel of seed was readily disposed of at $14, and that he witnessed the sale of one load for which a little over $1400 cash was paid. He saw another load sold for $1050.

A farmer with whom Mr. Mills visited rented an eighty-acre tract for $160. From this field the man sold over $2000 worth of sweet-clover seed, to say nothing of the hay feed left from the straw.

Mr. Mills probably farms more land near Hastings than any other farmer in the county.

He says at first horses and cattle refuse to eat the clover plant, once styled as a pest and obnoxious weed; but that after they once get a taste the stock will pass up the choicest alfalfa for it.

Mr. Calvert informs me that the price of sweet-clover seed has been steadily advancing; and just now, Oct. 27, the price is away up. This whole matter of sweet clover illustrates how farmers and others who do not keep posted may get into a notion that one of God's best and most precious *gifts* is an *enemy* to mankind. This comes about because so few of the farming people keep in touch with the experiment stations now

to be found, I think, in every State in the Union. Our experiment stations from first to last have called sweet clover a valuable legume. It is valuable for stock, and it enriches the land like other clovers, no matter where it grows. The demand for seed has been so great that the price has gone up until we cannot sell it now for less than 22 cts. per lb. in lots of 100 lbs.

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### SWEET CLOVER AS A PREPARATION FOR GROWING SUGAR BEETS.

Mr. F. S. Hardy, of Fruitland, Wyo., is making us a visit. When he first went on to his land in Wyoming the agent told him he was very sorry to be obliged to admit that sweet clover was making considerable headway on some parts of the piece of land. Out there they grow alfalfa largely. Well, our friend bought some alfalfa seed that turned out afterward to contain quite a per cent of sweet-clover seed. At first he was a good deal worried; but he soon discovered that the sweet clover was greedily eaten by his stock, and seemed to be worth fully as much as alfalfa. Another thing: The sweet clover on that peculiar alkali soil not only grows away up in the air higher than you can reach, but it makes roots almost as large as a man's wrist at the surface of the ground; and these great roots he has found down at a depth of 4 feet or more. Well, their soil lacks humus more than almost any thing else. These tremendous sweet-clover roots furnish humus. Now, that is not all. As some of the political speakers say (especially of late), I want to say to you, "Now, just listen." Fruitland, Wyoming, is in the region of the sugar-beet industry. Since the present war broke out, inducements to produce our own sugar are greater than ever before. Well, Mr. Hardy not only had a great crop of sugar beets where the sweet clover had been growing—a crop that took the first premium at the State Fair—but the sugar content of these beets was about 19 per cent, or almost one-fifth of the raw beets was *real sugar* itself. In fact, I have tasted sugar beets that seemed to be pretty near up to the above mark; and it begins to transpire that this high per cent of sugar is found only where there has been a rank growth of sweet clover to turn under. I wonder what the enemies of sweet clover (if there are any now) have got to say when they come to face the above facts.

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### THE "AERIAL" POTATOES.

I see in reading GLEANINGS that you are quite a gardener. I am sending you a few potatoes that are of a very queer growth. When digging, there are no potatoes under ground, but about a dozen grow on stalks above ground. The larger one, to me, resembles a toad. They are such a curiosity I want you to see them.

South Euclid, Ohio. MRS. WELCH.

My good friend, the Department of Agriculture has recently put out a bulletin describing what you mention. They give it the name of Aerial potato, and I think they call it a disease. I have noticed it more or less for years past, but supposed it was only a sort of freak such as we often see among vegetables. Down in Florida I had one hill that produced as much as a dozen of these potatoes above ground with few or none below. As I had put some very heavy fertilizer on one of the papayas near by I supposed it was the effect of the fertilizer, but I may have been mistaken. At first I thought I would plant these potatoes that grew up in the air; but when the Department suggested it was a disease I changed my mind. I have at times seen similar potatoes growing on the outside of old potatoes that happened to be neglected in the cellar where there was a little light.

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### LIQUOR ADVERTISEMENTS; MAGAZINES AND OTHER PERIODICALS THAT DO NOT ACCEPT THEM.

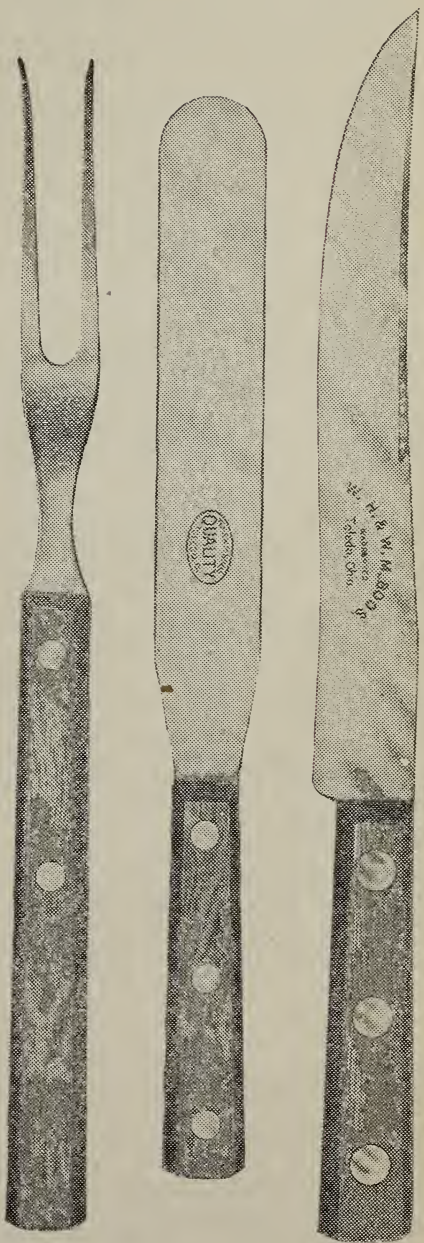
Some time ago we gave a brief list of periodicals rejecting liquor advertisements; and now a friend has submitted a page of the *Amethyst,* giving a list of the papers and magazines of this sort. Lack of space prevents our giving the complete list; but let me say that in round numbers it comprises toward *500* papers and about *50 magazines.* I scarcely need tell you that this list includes the most prominent and respectable periodicals of our nation; and it begins to look very much as if the periodicals that accept these pernicious and damaging advertisements will soon begin to be ashamed of themselves if they are not already.

By the way, let me mention a little incident. Last winter, in discussing this matter with my good neighbor Rood (down in Florida) he said his boy was great on baseball, and had subscribed to the Chicago *Record-Herald* especially on account of its baseball news. His father made some objection, saying he did not like to see a paper in his home containing such glaring whisky advertisements; but the boy maintained there was no other daily that could take the place of the *Record-Herald.* Just a few days later the boy came in, swinging his hat, saying the *Herald* had announced that it would print no more whisky advertisements, etc. So you see that even our great *dailies* are *growing* in grace and wisdom.

# Three-piece Quality Kitchen Set No. 507

The Three-piece Quality Kitchen Set is made up of three of the most useful kitchen accessories it is possible to combine, viz., an **EIGHT-INCH SLICING KNIFE**, a **SEVEN-INCH KITCHEN SPATULA**, and a **STRONG TWO-TINED FORK**. The steel used in the blades is the best obtainable, and is finely tempered. The blade of the slicing-knife is full swedged, and the edge stone-ground under water. The spatula and slicing-knife are both finely etched and very highly polished.

The handles of all three are of genuine cocobolo with beveled edges. They have through tangs with three large brass saw rivets. The set is all the name implies, **QUALITY**, in the strictest sense of the word. We guarantee satisfaction.




## Gleanings in Bee Culture Premium Offer

We offer this complete set of knives postpaid to any reader who sends us one new yearly subscription to **GLEANINGS IN BEE CULTURE** at $1.00 per year, or we will send the set of knives postpaid for four new six-months' trial subscriptions at 25c each.

Canadian postage on subscription for one year 30c extra. On each trial subscription, 15c extra.

## The A. I. Root Company, Medina, Ohio

# Classified Advertisements

Notices will be inserted in these classified columns at 25 cents per line. Advertisements intended for this department can not be less than two lines, and should not exceed five lines, and you must say you want your advertisement in the Classified Columns or we will not be responsible for errors.

## HONEY AND WAX FOR SALE

HONEY LABELS.—Lowest prices. Catalog and price list free. PEARL CARD CO., Clintonville, Ct.

FOR SALE.—Extracted clover honey, fine quality; 9 cts. per lb. JOE HANKE, Port Washington, Wis.

FOR SALE.—Choice extracted honey in new 60-lb. cans at 9 cts. per lb. J. P. MOORE, Morgan, Ky.

FOR SALE.—Extracted buckwheat honey in 160-lb. kegs. N. L. STEVENS, Venice Center, N. Y.

FOR SALE.—Extracted white-clover honey in barrels. DR. GEORGE BIENER, Port Allen, La.

FOR SALE.—2000 lbs. of buckwheat and amber honey, 7 cts. in 60-lb. cans. GEO. RAUCH, Orange Mountain Bee Farm, Guttenberg, N. J.

FOR SALE.—California orange-blossom honey, extra fancy, at 9 cts. Safe arrival guaranteed. Sample free. JAMES MCKEE, Riverside, Cal.

COMB HONEY.—No. 1, choice, and No. 2, Colorado standard grades. Carload just in. State quantity wanted. DADANT & SONS, Hamilton, Ill.

FOR SALE.—Comb and extracted honey. Tennessee smoked hams and bacon. Write for prices. J. E. HARRIS, Morristown, Tenn.

FOR SALE.—Light-amber extracted honey in carload lots at 5 cts., by Tulare Co. Beekeepers' Association, C. W. TOMPKINS, Sec., Tulare, Cal.

FOR SALE.—8000 lbs. white alfalfa sweet-clover honey, 7 cts. per lb. for the lot. T. H. WAALE, Nampa, Idaho.

FOR SALE.—Best quality white-clover extracted honey in 60-lb. cans. State how much you can use, and I will quote price. L. S. GRIGGS, 711 Avon St., Flint, Mich.

Light-amber honey, 9 cts. per lb. California sage honey, 10 cts.; two 60-lb. cans to a case. Sample of either, 10 cts. I. J. STRINGHAM, 105 Park Place, New York..

FOR SALE.—50,000 pounds light extracted honey, well ripened and mild flavored, 7½ cts. by the case of two sixty-pound cans; in ten-case lots, even seven cents per pound. H. G. QUIRIN, Bellevue, Ohio.

FOR SALE.—Beautiful white-clover-basswood blend of extracted honey in new 60-lb. net tins. Carload or less. Ask for a sample, stating how much you can use. E. D. TOWNSEND & SONS, Northstar, Mich.

EXTRACTED HONEY.—Best water-white and nice amber alfalfa in 60-lb., 30-lb., and smaller tins. State quantity you want. Special prices on ton lots or over. Several carloads just in. DADANT & SONS, Hamilton, Ill.

FOR SALE.—Light-amber extracted honey of excellent quality for table use at only 7 cts. per lb. on car. Well sealed and good body. A sample will convince you. We have five tons of it; and to close it out soon we are offering it at this very close price. In 60-lb. net tin cans, two in a case for shipment. E. D. TOWNSEND & SONS, Northstar, Mich.

Dealers in honey, ask for a late number of the *Beekeepers' Review*, containing a list of 75 members having honey for sale. Address THE BEEKEEPERS' REVIEW, Northstar, Michigan.

## HONEY AND WAX WANTED

WANTED.—Comb honey and beeswax. State what you have and price. J. E. HARRIS, Morristown, Tenn.

WANTED.—Comb, extracted honey, and beeswax. R. A. BURNETT & CO., 173 So. Water St., Chicago.

WANTED.—Comb honey. Give full description and price. A. I. ROOT CO., Des Moines, Ia.

WANTED.—About 5000 pounds choice white extracted honey, at 8 cts. per lb., f. o. b. West Bend, Wis. H. C. AHLERS.

WANTED.—Extracted honey. Send sample and best price. State quantity you have for sale, and how packed. W. HICKOX, Forsyth, Mont.

WANTED.—Honey, extracted and comb, also beeswax. Will pay full market value. Write us when you have any to dispose of. HILDRETH & SEGELKEN, New York City.

WANTED.—Buckwheat comb and extracted honey. Comb to be produced in standard sections, where fences or separators have been used. We prefer to have it packed in new shipping-cases of 24 sections each. All sections to be free from propolis, and well graded. Extracted to be heavy in body, of a good flavor, not mixed with other fall honey. We prefer it shipped in new 5-gallon cans or in small barrels. We want early shipments. State cash price for all grades delivered in Medina. THE A. I. ROOT CO.

## FOR SALE

FOR SALE.—A full line of Root's goods at Root's prices. A. L. HEALY, Mayaguez, Porto Rico.

FOR SALE.—Full line of Root's goods at factory prices. E. M. DUNKEL, Osceola Mills, Pa.

Beekeepers, let us send you our catalog of hives, smokers, foundation, veils, etc. They are nice and cheap. WHITE MFG. CO., Greenville, Tex.

White-sweet-clover seed, 10,000 pounds unhulled at 12 cts. per lb.; 8000 pounds hulled cleaned seed at 20 cts. per lb.; sacks 25 cts. extra. Immediate shipment. B. F. SMITH, JR., Cowley, Wyo.

"Root" bee supplies and "American" honey-cans always on hand in carload lots. SUPERIOR HONEY CO., Ogden, Utah. (Branch at Idaho Falls, Ida.) Manufacturers of the celebrated "Weed Process" foundation. Highest prices paid for beeswax.

*The Beekeepers' Review* is now owned and published by the honey-producers thmeselves. It is *the* paper that all honey-producers should support. Twenty-one months, beginning with the April, 1914, number, for only $1.00. Sample copy free. Address THE BEEKEEPERS' REVIEW, Northstar, Mich.

## WANTS AND EXCHANGES

WANTED.—To furnish every beekeeper within 500 miles of Boise, Idaho, with the best and cheapest bee supplies on the market, *quality considered*. Send me your order or a list of your requirements for 1914. Our catalog and price list will be mailed to you free. Order early and get the discounts. C. E. SHRIVER, Boise, Idaho.

## REAL ESTATE

FOR SALE CHEAP.—40 acres good irrigated land, also 150 stands bees and extracting-outfit. WM. MCKIBBEN, Ontario, Ore.

FOR SALE.—Good grain and stock farm, direct from owner, $3500. J. W. BELFORD, Rt. 1, Golconda, Ill.

## BEES AND QUEENS

Bees for rent and sale. OGDEN BEE AND HONEY Co., Ogden, Utah.

FOR SALE.—200 colonies of bees in white tupelo district. Good bargain. J.B. MARSHALL, Big Bend,La.

FOR SALE.—Golden Italian queens that produce golden bees; for gentleness and honey-gathering they are equal to any. Every queen guaranteed. Price $1.00; 6 for $5.50. WM. S. BARNETT, Barnett's, Va.

Golden Italian queens that produce golden bees, the brightest kind, gentle, and as good honey-gatherers as can be found. Each, $1.00; six, $5.00; tested, $2.00; breeders, $5.00 to $10.00.
J. B. BROCKWELL, Barnett's, Va.

California Italian queens, goldens and three-banders. Bees by the pound a specialty; also nuclei and full colonies. Orders booked now for the early spring months. Circular free. J. E. WING,
155 Schiele Ave., San Jose, Cal.

FOR SALE.—150 colonies of bees on standard Hoffman frames, straight combs; stores to last until June; mostly three-band Italians; Root-Moore strain young queens; no disease; in winter cases; all in good condition. WILMER CLARKE,
Box 200, Earlville, Mad. Co., N. Y.

FOR SALE.—40 colonies three-band Italians, healthy, from Root queens, full sheeted, wired Hoffman frames, 10-fr. Root hives, telescope cap or deep asbestos-lined covers; $7.50 per, f. o. b., less 6 per cent up to Dec. 20. Extra comb-super with each free. References: A. H. Root and State Bank of Canastota. CLARK WILSON, Canastota, N. Y.

## POULTRY

As I had the highest-scoring R. C. B. Leghorn in the Hudson poultry show I will sell a fine lot of R. C. B. Leghorn cockerels for $1.00, $2.00, $3.00, and a very fine one for $5.00.
GEORGE J. FRIESS, Hudson, Mich.

EGG STOCK.—Pure-bred pedigreed Barred Rock cockerels and hens. Mothers laid over 200 eggs in 10 months. Sires have 15 years of pedigreed breeding for eggs behind them. Grandmother laid 217 eggs in third year of production. Pen of my hens stand eighth among 100 pens in Missouri Egg-laying Contest. Eggs in season. Speak quick.
B. F. W. THORPE,
358 S. Yellow Springs St., Springfield, Ohio.

## MISCELLANEOUS

FOR SALE.—Indian motorcycle, 7 h.p., $150; if taken at once, 5 per cent discount for cash.
A. B. CRANE, Carmel, N. Y.

If you want to make sure of an eight-pound "Trinidad Dasheen-seed" shipment, in time for spring planting, send me $1.00 now.
M. LEIDERSDORF, Daytona, Fla.

Beekeepers, Attention.—The L. & H. Apiaries, Clarkston, Mich., can supply you with extra good ripe eating potatoes at 1 ct. per lb. in lots of from 100 to 500 lbs., f. o. b. Clarkston Station. Order quick. L. & H. APIARIES.

$$$$ IN PIGEONS! Start raising squabs for market or breeding purposes. Make big profits with my Jumbo pigeons. We teach you. Large, free, illustrated, instructive circulars. PROVIDENCE SQUAB Co., Providence, R. I.

## SITUATION WANTED

WANTED.—A sober young man who has had experience, a position in beeyard for the season of 1915. ALEX. ELWOOD, Walton, N. Y.

Young man experienced with bees, fruit-growing, and gardening wants position for a few months in Florida. CHAS. S. BLOOMER, Marlboro, N. Y.

Will take charge, or work season of 1915; am a middle-aged man; 25 years' experience; good at queen-rearing. L. W. BENSON, Hot Springs, Ark.

WANTED.—Middle-aged German of good habits, like to work in apiary where he could learn the business, special comb honey and queen-rearing; have some experience. JULIUS W. SCHINNER,
Box 292, Scotia, Cal.

## BEEKEEPERS' DIRECTORY

Well-bred bees and queens. Hives and supplies. J. H. M. COOK, 70 Cortlandt St., New York.

Nutmeg Italian queens, leather color, after June 1. $1.00 by return mail. A. W. YATES, Hartford, Ct.

QUEENS.—Improved red-clover Italians bred for business June 1 to Nov. 15, untested queens, 75 cts. each; dozen, $8.00; select, $1.00 each; dozen, $10; tested queens, $1.25 each; dozen, $12.00. Safe arrival and satisfaction guaranteed.
H. C. CLEMONS, Boyd, Ky.

Best wishes for GLEANINGS and editor, and love for Mr. A. I. Root. I can never tell him how much good he has done me through his Homes department.
Eddy, Tex., March 18. C. A. ROMING.

I have just read about the talk in the shoe-shop, etc. May God bless you, Mr. Root. This Home talk and the one before have done me a world of good. Please send me a few leaflets, "The Defeat of Injustice."
Westfield, Ind., Oct. 7. A. L. BEALS.

It is doing the work, as I felt sure it would. I think I can make *splendid* use of one or two hundred of the leaflets entitled "The Defeat of Injustice" at our Sunday-school. May God spare you to carry on your Home papers for many more issues.
Mortonsville, Ky., Oct. 17. J. H. BOWMAN.

A SUBSCRIBER FROM 1878 TO 1914.

I have followed A. I. Root through Our Homes since 1878, and wish he and Governor Hooper could see the hundred mark and have all the strong drink and tobacco in the United States under their control. What a change there would be in the homes throughout the country!
Mohawk, N. Y., Oct. 23. C. R. MORTS.

THE WAR, CHRISTIANITY, ETC.

*Dear Bro. Root:*—After reading your sermon, Oct. 1, I couldn't refrain from writing a few lines to say amen. I have often read your articles, and will say that I have received much encouragement from them. I am striving the best I can to do God's will by helping in the church as Sunday-school superintendent, and, like you, I know there is great help by earnest *silent* prayer. While you are about 50 years my senior, I can read between the lines and see you have the real experience. If the heads of more journals were like you in this respect the world would be better; and after 2000 years of Christian teaching we wouldn't be killing each other off as fast as possible.

Keep at it, and your reward will not only be hereafter but now.
Fowler, Colo., Oct. 26. DR. J. H. SAMUEL.

## Convention Notices

The Michigan Beekeepers' Association will hold its next annual convention at Lansing, December 9 and 10. E. MORSE, Pres.

The annual meeting of the Kansas State Beekeepers' Association will be held in the Commercial Club rooms, Topeka, Dec. 4 and 5. Mr. Frank C. Pellett, of Iowa, will deliver a lecture on wintering. We are preparing a splendid program. All persons interested in bees are urged to attend these meetings.
Topeka, Kan. O. A. KEENE, Sec.

The National Beekeepers' Association will hold its annual session at Denver, Colorado, some time during the month of February. The exact date and program will be announced later. Denver being situated in the center of the producing country, and many of the largest producers of the country within easy reach, we may well expect a meeting of "live wires." Present indications promise well for a big attendance. Come and "get together and boost."
Redkey, Ind. GEO. W. WILLIAMS, Sec.

The 18th annual meeting of the New York State Association of Beekeepers' Societies will be held at the Onondaga County Courthouse, Syracuse, on Tuesday and Wednesday, Dec. 1 and 2. We expect to have with us speakers who are among the most successful beekeepers in the world. Those having a device that will make beekeeping work more quickly or easily done are requested to bring it with them and demonstrate its use. A time will be allotted for the demonstration of exhibits. Come, everybody. Think of the good things you have had at past meetings, and the good times you have had, and resolve to be with us again.
Camillus, N. Y. IRVING KINYON, Sec.

There will be a meeting at Akron, Erie Co., N. Y., on Tuesday, Dec. 15, 1914, at the American Hotel, commencing at 10:30 A. M., and closing at 3:30. Some of the best beekeepers in western New York will be there to speak. There will also be other discussions on bee culture. This meeting, coming soon after the Syracuse meeting, will give those residing in western New York a chance to learn the latest in beekeeping, and also a chance to form a branch of the N. B. K. A. Akron is well situated, being but 20 miles east of Buffalo. It has good railroad accommodations and two State improved highways. The American Hotel is an ideal place for such a meeting, offering first-class accommodations at a reasonable rate. The large hall is free to all. Come and get acquainted; learn something new; see what the other fellow is doing; get together, talk it over; have a good time—take a day off. It will pay you in the end.

The Eastern Massachusetts (formerly the Massachusetts) Society of Beekeepers has secured meeting rooms for the winter at room 448 Old South Building, Washington St. The first speaker of the season was Secretary of the State Board of Agriculture, Wilfrid Wheeler. The other speakers announced are Mr. Arthur C. Miller for November; Mr. Allen H. Latham for December; Mr. A. W. Yates for January; Mr. John L. Byard for February; Dr. Burton N. Gates for March, and Mr. O. F. Fuller for April.

The society starts the tenth year of its existence with a membership of 125, and 20 new applications for membership in the hands of the secretary.

The officers of the society are T. J. Hawkins, of Everett, Pres.; Joseph Levens, of Malden, Senior Director; E. M. West, of Cambridge, Junior Director.

Notwithstanding the unfavorable summer, honey conditions in this part of the country have been all we could expect, and very little feed has been necessary. BENJAMIN P. SANDS.
Brookline, Mass., Nov. 4.

The 24th annual convention of the Illinois State Beekeepers' Association will be held in Senate Committee Room 17 at the State House, on Thursday and Friday, November 19 and 20, 1914.

Call to order at 10 A. M. by E. J. Baxter, President, Nauvoo, Ill.

Invocation—Rev. Donald C. MacLeod, D. D., First Presbyterian Church, City.

Welcome Address—Hon. W. A. Northcott, President Chamber of Commerce, City.

Response and President's Address—Pres. Baxter.

Order of business taken up.

AFTERNOON.

Address—Prof. J. G. Mosier, Chief in Soil Physics, University of Illinois; subject, "Sweet Clover." Discussion.

Address—Hon. N. E. France, Platteville, Wis.; subject, "Short Cuts." Discussions always in order.

Report of State Foul-brood Inspector, Putnam, Ill.

SECOND DAY—FORENOON.

Former Pres. C. P. Dadant, Hamilton, Ill. Subject to be chosen.

Dr. E. F. Phillips, in charge Bee Culture Investigations, Washington, D. C.; subject, "Temperature and Moisture of the Hive in Winter."

Election of officers, and photo to be taken.

SECOND DAY—AFTERNOON.

Dr. Burton N. Gates, Pres. National Beekeepers' Association, Amherst, Mass.; subject, "Interests and Workings of the National Association."

Miss Stewart of Chicago will be our stenographer.

Discussion and *sine die* adjournment.

Prize essays, $5.00, $4.00, $3.00, $2.00, $1.00.

Headquarters at the St. Nicholas Hotel—Rooms, European, $1.00 and $1.50; American, $2.50 and $3.00. Annex (to St. Nick), American, $3.00 and $3.50; European, $1.50 and $2.00.

Those desiring a cheaper hotel can find it.

Everybody interested in our work is invited.
JAMES A. STONE, Sec.

THE CHICAGO NORTHWESTERN BEEKEEPERS' ASSOCIATION.

The eighteenth annual meeting of the Chicago Northwestern Beekeepers' Association will be held at the Great Northern Hotel, Thursday and Friday, December 17 and 18. An extensive program has been arranged; and as several large beekeepers, such as N. E. France, E. S. Miller, and others have signified their intention of being present, a good meeting is assured. The program follows:

THURSDAY A. M., DECEMBER 17.

8:00. Social hour.
10:00. President's Address, C. F. Kannenberg.
10:30. Reading of minutes and report of Secretary-treasurer.
11:00. American Beekeeping, Past and Future, L. A. Aspinwall.
Crop reports.

AFTERNOON SESSION.

1:00. Shipping Bees North and South, H. C. Ahlers.
2:00. Country-wide Advertising to Increase the Sale of Honey, G. E. Bacon.
3:00. Report of Delegate to National Convention, E. J. Baxter.
4:00. Bee-cellars, E. S. Miller.
Question-box.

THURSDAY EVENING.

Sweet Clover, Prof. J. G. Mosier, University of Illinois.

FRIDAY A. M.

9:00. Social hour.
10:00. The High Price of Sugar and the Honey Market, F. C. Pellett.
11:00. The Foul-brood Problem, N. E. France.

AFTERNOON SESSION.

2:00. Brood-rearing for Crop Results, E. L. Hofman.
3:30. Comb Honey—Preparing for the Crop, A. L. Kildow.
4:00. Beekeeping as a Business, E. H. Bruner.

WISCONSIN STATE BEEKEEPERS' CONVENTION NOV. 24, 25, 1914, TO BE HELD IN MADISON, WIS., ASSEMBLY ROOM, CAPITOL.

Every Wisconsin beekeeper should attend this important meeting. Plan to come. By sending $1.00 in advance to Simon's Hotel to secure lodging you will be with majority of members in general visit. If you cannot come, and have questions to ask, mail them to L. V. France, 435 W. Washington Ave., Madison, who will see they are presented. The Agricultural College will have on exhibit valuable maps, etc., with information gathered in the past three years all over the State.

PROGRAM—NOV. 24.

8:00—9:15. General visiting of beekeepers, Assembly room.

9:15—10:45. Question-box and discussion. All take part.

10:45—11:30.—Points we must observe.—C. P. Dadant, of Illinois.

11:30—11:45. Appointment of committees and business.

11:45—12:00. Discussion on exhibits.

PRODUCTION AND MARKETING.

1:15—1:30. How I produce comb honey, John Otto.

1:30—1:45. How I produce comb honey, Mathilde Candler.

1:45—2:00. Discussion on above. Open to all.

2:10—2:25. How I produce extracted honey, Frank Kittinger.

2:25—2:40. How I produce extracted honey, A. P. Raymond.

2:40—3:10. Discussion on above. Open to all.

3:10—3:20. Recess.

3:20—3:35. Marketing of comb honey, E. R. Root, Ohio.

3:35—3:50. Marketing of comb honey, Aug. Lotz.

3:50—4:00. Discussion of comb-honey marketing, open to all.

4:10—4:25. Marketing of extracted honey, C. P. Dadant, Illinois.

4:25—4:40.—The auto truck for out-apiaries, E. B. Rosa.

4:40—5:00. Discussion on marketing extracted honey, open to all.

5:00—5:30.—Marketing in general. Discussion.

EVENING SESSION—WINTERING OF BEES.

7:15—7:45. Temperature and humidity, E. F. Phillips, Washington, D. C.

7:45—8:00. Application suitable for Wisconsin, E. F. Phillips.

8:00—8:30. Five essentials for wintering bees, E. R. Root, Ohio.

8:30—8:45. Discussion. Open to all.

8:45—9:30. Wintering. Five-minute replies by F. Kittinger, Louis Post, Fred Mack, Wm. Krueger, A. P. Raymond, Geo. Barge, Elias Fox.

9:30—9:45. How I winter bees, N. E. France.

9:45—10:00. Discussion. Open to all.

NOV. 25—DISEASES OF BEES.

8:00—8:20. Paying of dues. General visiting of all.

8:20—8:30. American foul brood, how to know it, N. E. France.

8:30—8:40.—American foul brood, my experience, J. Angel.

8:40—8:50. American foul brood, my experience, Fred Mack.

8:50—9:00. American foul brood, my experience, Anton Linn.

9:00—9:10. American foul brood in Wisconsin, L. V. France.

9:10—9:40. What must we do? Discussion. Open to all.

9:40—9:50.—European foul brood, how to know it, N. E. France.

9:50—10:00. How to know doubtful cases and treatment, E. F. Phillips, Washington, D. C.

10:00—10:10. My experience with European foul brood, John Otto.

10:10—10:20. My experience with European foul brood, Paul Scheuring.

10:20—10:30. My experience with European foul brood, Gustav Gust.

10:30—10:40. My experience with European foul brood, Hemran Heurkens.

10:40—10:50. European foul brood in Wisconsin, N. E. France.

10:50—11:20. Discussion. Open to all.

11:20—11:30. Inspection in Wisconsin, N. E. France.

11:30—12:00. Election of officers.

Adjournment.

N. E. FRANCE, President, Platteville, Wis.
GUS. DITTMER, Secretary, Augusta, Wis.

I have not missed seeing a copy of GLEANINGS since father began getting it in 1883. I was only 8 years old then. Your Home talks are of great interest. The tobacco column, 1890, induced me to quit tobacco, but I never claimed the smoker.

Timewell, Ill., Oct. 7. OSCAR PIERSON.

# SPECIAL NOTICES

BY OUR BUSINESS MANAGER.

BEESWAX LOWER.

The market price of beeswax shows a further weakening, and we have been able to buy a large block of all-yellow Mexican as low as 26 cents, New York. We quote on domestic wax, delivered at Medina, 29 cts. cash, 32 in trade for average quality, or 28 cts. cash, 30 in trade, delivered at our San Francisco office.

COMB FOUNDATION LOWER.

Because of the decline in price of beeswax we have canceled the advance in price of comb foundation, which was made last March, and are now quoting the same price as was in effect a year ago. No change was made in the one and five pound rate, only in larger quantities. The price on such quantities had been raised 2 cts. per lb., and are now restored to the old rate.

SWEET-CLOVER SEED.

We have secured some choice hulled white-sweet-clover seed from Pennsylvania, some more from Michigan, and a further lot from Wyoming, and are now prepared to quote a special price on large-quantity lots on application. The price for small lots will be as last quoted; viz.:

| Prices in lots of | 1 lb. | 10 lb. | 25 lb. | 100 lb. |
|---|---|---|---|---|
| White sweet clover, unh'ld | .20 | $1.80 | $4.25 | $16.00 |
| *Melilotus alba*, biennial | | | | |
| White sweet clover, hulled | .26 | 2.40 | 5.75 | 22.00 |
| Yellow sweet clover, unh'ld | .20 | 1.80 | 4.25 | 16.00 |
| *Melilotus officinalis*, bien. | | | | |
| Yellow sweet clover, hulled | .26 | 2.40 | 5.75 | 22.00 |
| Yellow sweet clover ..... | .08 | .60 | 1.25 | 4.00 |

*Melilotus Indica, annual* (hulled old seed).

FIVE PER CENT DISCOUNT FOR NOVEMBER CASH ORDERS.

To those who buy now for next season, sending remittance with the order during the month of November subject to the conditions named below, we allow 5 per cent discount.

This discount will apply on all articles listed in our regular catalog at current corrected prices to date except as follows:

Tinned wire, paint, Bingham smokers, Porter bee-escapes, glass and tin honey-packages, scales, bees and queens, bee-books, papers, labels, printed matter, bushel boxes, seeds, and specialties not listed in our general catalog. Where any or all of these articles in a general order do not exceed fifteen per cent of the whole order, the discount may be deducted from the whole order, including these items which are otherwise excepted.

# SPECIAL NOTICES

BY A. I. ROOT

HOME-MADE CORNFLAKES; ANOTHER SHORT CUT FROM PRODUCER TO CONSUMER.

On page 240, March 15, T. B. Terry and Ella Wheeler Wilcox talk about "good health and a good bank account at one stroke," killing two birds with one stone, as you will notice. This is done by having a little mill or feed-chopper that will take the wheat you grow and grind it or flake it as you choose, so you will not need to pay for any fancy pasteboard package and two or three middlemen before the wheat gets from grower to consumer. I have just found out where this little flaking machine can be purchased. It is offered by the J. A. Williams Co., 51 Chatham St., Pittsburg, Pa. The machines are made in four sizes; but the smallest one, which costs only $1.25, will do very good work for a small family. There are three different cutters —one for all kinds of meat, another for all sorts of vegetables, or for flaking wheat, corn, etc. The third one is a pulverizer for chopping dates, figs, popcorn, mustard seed, peanuts, horseradish, crackers, etc. The price of the smallest machine is only $1.25. My impression is that it will be sent by parcel post at this price, prepaid. The machine is easily taken apart, and there are only two pieces

to clean. From the way the machine is made, I am inclined to think it is practically self-sharpening. For particulars address as above

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### "GOOD HOUSEKEEPING."

Mrs. Root has always been greatly interested in every thing pertaining to housekeeping. When I first became acquainted with her when she was but sixteen years of age, even then she used to delight my boyish appetite with specimens of her own cooking. Yes, we *did* begin getting acquainted at a rather early age, and our respective parents "scolded" about it; but it did not do very much good until the young lady herself, when she began going to the high school in Medina, declared that my frequent visits were an interruption to her studies. But I think she kept track of *housekeeping*, even then. As the years have rolled by she has been, if not her *own* housekeeper, in close touch with the housekeeper; and her favorite papers and periodicals have been particularly those *devoted* to housekeeping. My attention has been called lately to a magazine entitled *Good Housekeeping*, which I find has been printed 58 years, or 16 years longer than GLEANINGS, as you will notice. It is a great big beautifully printed fully illustrated magazine; in fact, it is larger than many of the 25-cent magazines, and yet the price is only 15 cents. What particularly interests me in it just now is the series of articles by Dr. H. W. Wiley. In fact, Dr. Wiley has been peculiarly active for years past in showing up and protesting against every thing *antagonistic* to "good housekeeping." In fact, he has backed me up repeatedly in my crusade against electropoise, oxydonor, and various kinds of fakes and quacks.

Dr. Wiley has for years past defended nature's products for food, especially such foods as come direct from the hand of the great Father—fruits of all kinds, cracked wheat—yes, and *honey;* in fact, he so persistently ran against every thing in the line of *adulterated* foods that some of the wealthy manufacturers of objectionable food products succeeded with their millions in getting him out of his office as United States Chemist—an office he held for so many years with such praiseworthy results.

I have not space just now to tell you the good things about this magazine. Send and get a copy and you will know all about it yourself. The price is 15 cents each, or $1.50 a year. Address *Good Housekeeping*, 119 West Fortieth St., New York; or you can, if you choose, order it from this office when you are sending for GLEANINGS.

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### "THE BOOK OF WONDERS."

Our readers have probably noticed the advertisement in our issue for Nov. 1 of the book with the above title, containing 603 pages, price $4.00, and yet this $4.00 book is offered as a premium to anybody who sends us $2.00 for two new subscribers.

I notice the prevailing fashion to make extravagant offers to all who will bestir themselves a little to get a magazine or journal into the hands of new readers, and as a rule I have rather opposed this way of increasing circulation. I have felt that the *merit* of the periodical should introduce it to the world. If people take a paper mainly for the sake of the premium offered, they do not usually subscribe again; and what every periodical wants is permanent subscribers. But when I came to look at this book and run over its 600 pages I was compelled to admit that it is not only a "wonderful" book, as indicated by the title, but it is a very *valuable* book. You open it anywhere, and the beautiful pictures as well as the reading-matter catch hold of you at once. There are answers to almost every question imaginable; and as a rule I cannot help admiring the care and skill with which the greater part of the answers are given. But I searched the book without being able to learn *who* has the wisdom and intelligence to tell us of so much of what is going on in the world. There are twelve pages with illustrations devoted to up-to-date bee culture. I learn by a footnote that our institution loaned them the cuts; but I cannot tell who wrote the article on bees; but it is orthodox in the main, like almost every thing else we see in the book. The word "orthodox" reminds me that there is not a thing in the book, so far as I have been able to discover, that gives thanks or even makes mention of the great *Father* of this whole wide universe. Neither is there any reference to medicine and hygiene—at least I have not found it. Last, but not least, there is no particular reference to good morals, habit-forming drugs, nor any thing of the sort. In fact, the whole subject of tobacco is written up with just as much pains as milk or bee culture; also the chapter on cigarettes, cigars, and the wonderful progress of their manufacture and consumption, without a single hint anywhere in regard to their *effect* on humanity. True, it tells us of the tremendous amount of money spent for cigarettes, and we can all judge what this money, devoted to other purposes, would do; but not a suggestion that the money is wasted and *worse* than wasted. The publishers and the great wide world may urge that the book does not claim to be a work on theology or temperance or morals. It is simply a *history* of wonderful things.

There is one thing, however, right along this line that we can be devoutly thankful for. The great industry devoted to the manufacture of beer and ardent spirits is not even mentioned nor hinted at. Perhaps the publishers had the good sense to recognize at just this present crisis that it would be bad taste to include particulars in regard to the manufacture and consumption of beer and whisky. As I understand it, the book is not for sale. The only way you can get it is as a premium for getting new subscribers to GLEANINGS or some other periodical; and as the money you send for such periodicals amounts to only *half the price* of the book, why should anybody complain?

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### AN OREGON BOY ASKS FOR 500 LEAFLETS, "THE DEFEAT OF INJUSTICE."

*Mr. A. I. Root:*—In the latter part of Our Homes department in the October 1st issue I notice that you give the leaflets headed "The Defeat of Injustice" to anybody who will write and ask for them. Although I am only a boy of 15 I know that every word is true in these leaflets, and I wish others to know it too. Please send me 500 of these leaflets to start with, and I may order more.

Laurel, Ore., Oct. 16. CLARENCE PARR.

May the Lord be praised for the above letter. When a boy of fifteen takes in the grand truth in that leaflet it means much. May God bless you, my young friend, in your undertaking; and if you keep on in this line God will bless and care for you, you may be sure.

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1096.—Basque Dress for Misses and Small Women (with or without Tunic). Cut in four sizes: 14, 16, 17, and 18 years. It requires 5⅝ yds. of 44-in. material for a 16-year size; without tunic, 1⅝ yard less. The skirt measures 1½ yards at its lower edge. Price 10 cts.

1051–1094.—Ladies' Costume. Waist 1051; cut in six sizes: 34, 36, 38, 40, 42, and 44 inches bust measure. Skirt 1094; cut in six sizes: 22, 24, 26, 28, 30, and 32 inches waist measure. It requires 7¼ yards of material 27 inches wide for waist and skirt, and 4 yards for the tunic for a 36-inch size. The skirt measures about 1⅞ yards at its lower edge. TWO separate patterns, 10 cts. *for each.*

1110.—Girls' Over-blouse Dress with Guimpe. Cut in four sizes: 6, 8, 10, and 12 years. It requires 2⅜ yards of 40-inch material with 1⅞ yards for the guimpe for an 8-year size. Price 10 cts.

1093.—Girls' Coat. Cut in four sizes: 8, 10, 12, and 14 years. It requires 4 yards of 40-inch material for a 12-year size. Price 10 cts.

1085.—Ladies' Apron. Cut in three sizes: Small, medium, and large. It requires 5¼ yards of 36-inch material for a medium-size. Price 10 cts.

9761.—Ladies' Night Dress. Cut in three sizes: Small, medium, and large. It requires 6⅜ yards of 36-inch material for a medium size. Price 10 cts.

1086.—Ladies' Skirt with or without Yoke Tunic. Cut in six sizes: 22, 24, 26, 28, 30, and 32 in. waist measure. It requires 5½ yards of 44-inch material for a 24-inch size. The skirt measures 2 yards at its lower edge. Price 10 cts.

1082.—Ladies' Waist with Body Lining. Cut in six sizes: 34, 36, 38, 40, 42, and 44 inches bust measure. It requires 2½ yards of 40-inch material for a 36-inch size. Price 10 cts.



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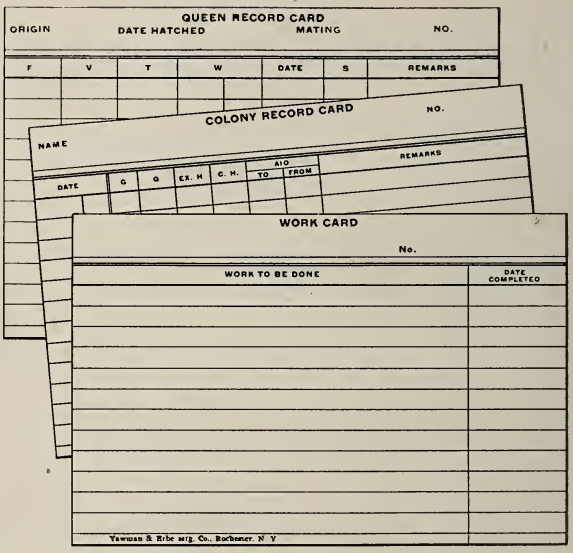


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